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In Brief

HSQ goes on line

Welcome to the inaugural online-only edition of Health Statistics Quarterly (HSQ), the first Office for National Statistics (ONS) journal to appear exclusively on the internet.

In autumn 2009 we asked readers to tell us what they thought about HSQ and our plans. Feedback was largely positive, both about the journal and the move online, however it did help us identify room for improvement. In particular, readers wanted to be able to find HSQ more easily online, know what would be published when, and be able to access data in a more user-friendly format.

HSQ now has a new, easily recognisable homepage at www.statistics.gov.uk/hsq which acts as a gateway to all HSQ content, including a list of future editions and, where possible, what these editions will include. The 'current edition' page includes links to statistical bulletins that replace the data releases previously called 'reports' in HSQ, and to the regular reference tables, which can now be downloaded as Excel spreadsheets.

We believe that these changes, along with the ability to reach a wider international audience, make for a bright digital future for HSQ, but we'd like to hear your thoughts too. Please continue to send comments, suggestions and ideas for articles to hsq@ons.gsi.gov.uk or call 01633 455447.

Stephen Penneck is new Director General

The ONS welcomed its new Director General (DG) Stephen Penneck, formerly ONS's Director of Methodology, in November 2009.

Stephen has spent most of his career at ONS. He has wide experience as a government statistician, initially in economic statistics and more recently heading the Surveys and Administrative Sources Directorate.

As DG, Stephen will be responsible for the day-to-day management of ONS. He will report to the National Statistician, Jil Matheson, and to the UK Statistics Authority via the ONS Board chaired by Lord Rowe-Beddoe.

For more details visit
www.ons.gov.uk/about/newsroom/statements/new-director-general-for-ons-appointed.html

Child mortality statistics

As part of an ongoing review of mortality publications, ONS has decided to restructure the annual reference volume *Mortality statistics: childhood, infant and perinatal* (Series DH3) which presents statistics on stillbirths, infant deaths and childhood deaths in England and Wales. The volume will now be published annually on the National Statistics website under its new name *Child Mortality Statistics.* The first publication is scheduled for March 2010.

Also as a result of the review, ONS will publish birth cohort tables as a separate package. The timing of this publication is yet to be finalised.

UK Health Statistics – suggestions invited for 2010 edition

ONS will publish the fourth edition of UK Health Statistics (UKHS) in November 2010. First produced in 2000, UKHS brings together up-to-date information on health and care for the UK and its constituent countries. The project is supervised by a cross-government steering group. It provides a ready reference for the comparison of key figures between the constituent countries, and between the UK as a whole and other nation states. Readers of HSQ are invited to help shape the next edition by providing feedback on the previous editions and suggestions for content or presentation.

UKHS can be found on the ONS website at
www.statistics.gov.uk/statbase/Product.asp?vlnk=6637

To make a comment; or if you have any questions relating to this series, please contact the UKHS team by e-mail: ukhs@ons.gov.uk or telephone: 01633 455925.

Consultation on the future of the National Congenital Anomaly System

ONS has issued a public consultation paper about the future of the National Congenital Anomaly System (NCAS). The document briefly sets out the purpose and background of NCAS and outlines the current issues affecting the usefulness of the system. In the light of declining reporting rates and other factors, ONS is now considering the closure of NCAS. It is suggested that the best way forward lies in good quality data produced by regional congenital anomaly registers.

Specifically, ONS proposes to end the collection of congenital anomaly data on paper forms immediately; maintain the NCAS legacy computer system, without new developments, as long as it is needed; publish the annual figures for anomalies reported in 2008 as the final output from NCAS; and work with the Department of Health and other stakeholders towards a properly funded, comprehensive national system based on the work of the existing regional registries.

The consultation runs until 26 March 2010. The document along with instructions for submitting your views can be found on the ONS website at
www.ons.gov.uk/about/consultations/consultation-on-the-future-of-the-national-congenital-anomaly-system/index.html

Intercensal denominators – feasibility of using the Labour Force Survey to estimate mortality rates by NS-SEC

Brian Johnson and Ann Langford *Office for National Statistics*

Abstract

Background

The purpose of this analysis is to investigate the feasibility of using the Labour Force Survey (LFS) to provide population denominators for the estimation of mortality rates by the National Statistics Socio-economic Classification (NS-SEC). This is in order to contribute to the monitoring of health inequalities over time. Currently it is possible to produce mortality rates only at the time of a census when populations are enumerated by occupation and NS-SEC.

Methods

The Labour Force Survey (LFS) was used to provide population denominators by age, sex and NS-SEC for various time periods. Numerators for mortality rates were derived by obtaining aggregate deaths by age group and NS-SEC analytic class for men aged 25–64. Standardised mortality rates were then derived. Results for 2001–03 were compared with published estimates which used 2001 Census-based denominators.

Results

Significant differences were detected for most NS-SEC classes between mortality rate estimates, based on the 2001 Census, and those based on the contemporary LFS dataset. However the results for different years, based on LFS denominators, suggest that a series of mortality rates using LFS-based denominators appeared to have internal consistency. The LFS-based estimates showed a statistically significant decrease in mortality rates between the periods 2001–03 and 2005–07, across all but one NS-SEC classes. The precision of LFS-based estimates at different levels of geography was also assessed in order to determine the feasibility of using these estimates to monitor inequalities at sub-national level.

Conclusions

The LFS can be used to produce regular population denominators for the estimation of mortality rates, to assess health inequalities by NS-SEC for men at the level of England & Wales, both on an annual basis and over three-year time periods. It is recommended that, in order for the LFS-based estimates to be effective over time, they would have to be related to each other rather than to the census-based ones. At the level of Government Office Region (GOR), it would also be possible to do this, but on a three-year period basis only. Below this level of geography, estimates would be insufficiently precise. Information exists on the LFS to produce a similar analysis for women.

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Introduction

For several decades, the measurement of inequalities in mortality by socio-economic class in England and Wales focused on estimated mortality rates around the time of the decennial census. The reason for this is that mortality rates require counts of deaths as numerators, and of relevant population counts as denominators. Deaths are routinely coded by occupation of the deceased, thus allowing counts of deaths by socio-economic class. The Office for National Statistics (ONS) compiles annual (mid-year) population estimates for England and Wales based on the latest census, updated to reflect subsequent births, deaths, migration and ageing. However, counts of the total population broken down by occupation and socio-economic class are available only at the census.

Thus through time, it is possible to compare decennial 'snapshots' of mortality by class. However, it has not been possible to produce a continuous annual analysis of mortality rates by occupation-based class, nor has it been possible to produce mortality rates by class at regional or local level, except at the time of the census.

With the increasing demand for health inequality measurement, there has been interest in the development of a continuous intercensal measurement system. The Labour Force Survey (LFS) is one possible source of data for intercensal population denominators classified by socio-economic class. Unlike the census, the LFS covers less than 1 per cent of the population, but is produced quarterly and has all the detail necessary to estimate mortality rates by class. It also has geographic identifiers allowing sub-national analysis to be undertaken.

As a result, it was decided that a study should be undertaken to determine how practical it would be to use the LFS to produce population denominators by the National Statistics Socio-economic Classification (NS-SEC) and to use them, in combination with death registrations, to produce mortality rates by NS-SEC for people of working age. The resultant mortality rates were then compared with published estimates which were based on denominators derived using the census, and are the only currently available estimates of mortality by NS-SEC. Investigations were also undertaken to examine how accurate these estimates were likely to be at sub-national levels of geography.

Therefore the aims of this article are:

1. To compare the mortality rates for men aged 25–64 in England and Wales using the 2001 Census, and the Spring Quarter 2001 LFS sample (where the data for both were collected at a similar time), and identify any substantial differences between the estimates using the two sources

2. To compare mortality rates produced using populations derived respectively from the 2001, 2002 and 2003 annual LFS datasets with rates derived using the 2001 Census, in order to see whether differences between rates derived from the two sources appeared to be random or patterned by class

3. To extend the estimates using LFS-based denominators to the middle of the decade to see how measured mortality rates by class changed over time

4. To assess the accuracy of estimates at lower levels of geography

At this stage, the detailed analysis was restricted to men, although tests were carried out to determine whether such an analysis would be possible for women.

Background

The Public Service Agreement (PSA) life expectancy target[1] in England is based on the difference in life expectancy at birth between the areas with the worst health and deprivation indicators (the Spearhead group) and the England average. This is a target based on socio-economic inequalities, but measured in terms of geographic areas. This is because it is relatively straightforward to compute annual age-specific mortality rates for administrative areas, compared to annual mortality rates by occupation-based class.

The work of the post-2010 strategic review of health inequalities (the Marmot Review)[2], commissioned by the Department of Health, has drawn attention to the need for new measures of health inequalities, building on past experience including the use of current PSA targets. Consequently, there is likely to be interest in new measures of inequality which are continuously measurable and based on individual characteristics as well as geography, such as mortality rates by socio-economic classification.

The only estimates of mortality rates by NS-SEC for men aged 25–64 currently available were published by ONS in Health Statistics Quarterly 36[6]. These rates apply to the period 2001–03 and were estimated using the 2001 Census to derive the denominators. These estimates cannot be updated by this method until the next decennial census.

This article explores the possibility of using the LFS as an alternative estimate of population denominators by NS-SEC. The LFS, which is designed to provide information on the UK labour market, collects detailed data on occupation for a sample of approximately 60,000 households in the UK each quarter. Respondents are interviewed five times, at 13-week intervals. Interviews are carried out mostly by telephone, although the first interview is face-to-face. LFS data are available at national, regional and local authority levels. Results from the survey are then weighted to ONS estimates of private household population. There is an annual LFS dataset which includes the quarterly data plus a boost of 39,000 households for England, 14,000 for Wales and 17,000 for Scotland[3].

The LFS and the census differ in several ways. The most important of these for the current purpose are:

- The LFS is a sample, while the census attempts to enumerate the whole population.
- The LFS is not compulsory – respondents are able to opt out. The weighting system is designed to compensate for the difference in response rate from different population groups.
- The occupation coding process differs. The LFS has an interviewer prompting for information, whereas the census usually does not.

- Communal establishments are not included in the LFS. However, since deaths at communal establishments were only about 2 per cent of all deaths for men under age 65 and there was no identifiable pattern among analytic NS-SEC classes in the proportion of deaths which were at communal establishments, it can be assumed that this will not materially affect the results. Given that these differences exist, this article compares mortality rate estimates computed using these two sources.

Methods

This section describes the NS-SEC in more detail, specifies the data sources used in the analysis and describes the analytical approach adopted in this article.

The National Statistics Socio-economic Classification

The conceptual basis for the NS-SEC is the structure of employment relations operating in modern developed economies[7]. Occupations are differentiated in terms of reward mechanisms, promotion prospects, autonomy and job security. The most advantaged NS-SEC groups (higher managerial and professional occupations), typically exhibit personalised reward structures, have good opportunities for advancement, relatively high levels of autonomy within the job, and are relatively secure. These attributes tend to be reversed for the most disadvantaged group (routine occupations). Box 1 shows the NS-SEC analytic class breakdowns used in this analysis, and provides examples of the occupations included in each class.

An NS-SEC category can be derived from an individual's occupation and employment status and the size of their organisation. Since size of organisation is not collected on the death register, a version of NS-SEC is used which is derived from occupation and employment status alone. This is known as 'reduced NS-SEC' and differs in terms of its typical distribution among NS-SEC classes by less than three per cent[8]. Reduced NS-SEC is used throughout the following analysis.

All people who can be assigned an occupation code and have sufficient information on employment status can be assigned to an NS-SEC category. These are known as 'functional' categories[7]. Aggregated versions of these such as that shown in Box 1 are known as analytic classes. For those who cannot be assigned an occupation based 'functional' NS-SEC category, there are certain other categories, such as 'full-time student', 'never worked' 'long-term unemployed' and 'inadequately described' These are known as 'residual' categories.

Data Sources for analysis

The following data sources were used in the analysis;

- Counts of deaths by NS-SEC, extracted from death registration data for the relevant periods
- The LFS-based populations derived from the weighted LFS datasets
- ONS mid-year population estimates by age group, used in the analysis as control totals
- The census-based mortality rate estimates, taken from the Health Statistics Quarterly article reporting male mortality rates by NS-SEC for the period 2001-03[6]. These estimates were used for comparison purposes

Box 1 National Statistics Socio-Economic Classification Analytic classes

Analytic class		Examples of occupations included
1.1	Large employers and higher managerial	Senior officials in national and local government; directors and chief executives of major organisations; officers in the armed forces
1.2	Higher professional	Civil engineers, medical practitioners, physicists, geologists, IT strategy and planning professionals, legal professionals, architects
2	Lower managerial and professional	Teachers in primary and secondary schools, quantity surveyors, public service administrative professionals, social workers, nurses, IT technicians
3	Intermediate	NCOs and other ranks in the Armed Forces, graphic designers, medical and dental technicians, local government clerical officers, counter clerks
4	Small employers and own account workers	Hairdressing and beauty salon proprietors, shopkeepers, dispensing opticians in private practice, farmers, self-employed taxi drivers
5	Lower supervisory and technical	Bakers and flour confectioners, screen-printers, plumbers, electricians and motor mechanics employed by others, gardeners, rail transport operatives
6	Semi-routine	Pest control officers, clothing cutters, traffic wardens, scaffolders, assemblers of vehicles, farm workers, veterinary nurses and assistants, shelf fillers
7	Routine	Hairdressing employees, floral arrangers, sewing machinists, van, bus and coach drivers, labourers, hotel porters, bar staff, cleaners and domestics, road sweepers, car park attendants

NS-SEC User Manual, Office for National Statistics [8]

Analytic approach

The first two aims of the study are concerned with the comparison of mortality rate estimates, based on LFS population denominators, with estimates of census-based mortality rates published in Health Statistics Quarterly 36[6] (HSQ36). The latter were produced using 'optimised' population estimates by NS-SEC, which were derived from the 2001 Census and ONS mid-year population estimates and adjusted for the health related under-classification of men to occupations at the census. These adjustments[6], referred to as health selection adjustments, were calculated using the ONS Longitudinal Study (LS).

In this study, estimates of mortality rates by NS-SEC were produced using the same figures for deaths by age (numerators) that were extracted from the death registers and used in HSQ36. The population figures (denominators) were obtained from the LFS, standardised by age to ONS 2001–03 mid-year population estimates, and adjusted for potential health selection using the same proportional adjustments as were used for the census-based denominators in HSQ36. The age-specific rates for each NS-SEC class were then standardised to the European standard population to produce age-standardised mortality rates for each class.

The method for obtaining the LFS population counts by age and NS-SEC is described in more detail in the Annex.

Outcome measures

Sets of mortality rate estimates were produced based on LFS datasets for the following periods:

- Spring Quarter 2001
- Annual 2001
- Annual 2002
- Annual 2003

From these it was possible to determine;

- The proximity of the Spring Quarter 2001 LFS and Census estimates of mortality rates by NS-SEC for 2001.
- The amount of variation between the three sets of mortality rate estimates based on three individual years of LFS denominator populations. For example, is the mortality rate for NS-SEC class X consistently over or under estimated, or do the errors appear to be random?

Mortality rates for 2005–07 were calculated using deaths registered in 2005–07 and the LFS population estimates for 2005–07. This enabled a comparison over time with figures for 2001–03.

Approximate estimates of the variances of the mortality rates were calculated taking into account the variance of the death counts, the sampling variance of the LFS population estimates, and the additional variation associated with the health selection adjustment. Confidence intervals and standard statistical significance tests were conducted assuming normality of the estimated rates.

In order to assess the level of precision of estimates at local levels of geography, both the number of deaths in a period and the corresponding LFS population estimates were assumed to be proportionately smaller than those for England and Wales, and approximate variances and hence confidence intervals were recalculated on this basis. For instance England and Wales is made up

of the nine Government Office Regions of England, as well as Wales. For this purpose, a typical region was therefore assumed to be one-tenth of the size of England and Wales, having one-tenth of the deaths and one-tenth of the population of England and Wales. These calculations were made both for the annual 2001 estimates, and the aggregate 2001–03 estimates.

Results

NS-SEC population distributions using the census and the LFS

The population percentages, by NS-SEC for males aged 25–64, using the Spring Quarter 2001 and annual 2001 LFS data are shown in Table 1, and are compared with the raw population percentages by NS-SEC from the 2001 Census and the optimised population percentages published in HSQ36[6]. The data for the census and the LFS Spring 2001 survey would have been collected at a similar time, and could therefore be assumed to relate to the same period.

Table 1 **LFS based estimates of percentage distribution of population by NS-SEC[1] men aged 25–64**

England and Wales — Percentages

NS-SEC analytic class	LFS Spring Quarter 2001	LFS Annual 2001	Census[2]	Optimised[3]
1.1 Higher managerial	8.7	8.8	7.5	7.7
1.2 Higher professional	10.5	10.2	9.1	9.4
2 Lower managerial and professional	21.0	21.2	21.1	22.2
3 Intermediate	5.3	5.2	5.2	5.9
4 Self-employed and own-account workers	12.2	12.6	13.4	13.9
5 Lower supervisory	13.7	13.7	12.2	13.6
6 Semi-routine	9.7	9.6	9.2	10.7
7 Routine	12.4	11.9	12.0	14.4
Full Time Students	1.0	0.9	1.1	0.2
Others	5.6	5.8	9.3	2.1
Total	100	100	100	100

1 Reduced derivation

2 Census based estimates before adjustment from White C, Glickman G, Johnson B and Corbin T (2007) 'Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03', Health Statistics Quarterly 36[6]

3 Optimised population estimates from White C, Glickman G, Johnson B and Corbin T (2007) ' Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03', Health Statistics Quarterly, 36[6]

The LFS classified approximately 6.7 per cent of men to residual NS-SEC classes, compared to 10.4 per cent for the census and only 2.3 per cent for optimised person-years at risk. The difference relative to the census is partly a result of the coverage of the LFS excluding communal establishments and partly of the higher propensity of the LFS to assign people an occupation. The difference relative to the optimised person-years at risk is partly a result of the method used in the HSQ36 analysis which increased the proportion of the population assigned to analytical NS-SEC

classes, by using a 'health selection adjustment'. This adjustment was calculated using ONS Longitudinal Study information on 1991 occupation for those with no occupation recorded at the 2001 Census.

Comparison of the percentages in each NS-SEC analytic class for the LFS Spring Quarter of 2001 and for the whole year suggests very little difference between the two. Only the routine class demonstrated differences that were statistically significant at the 5 per cent level. As a result, LFS annual rather than quarterly data were used for the remainder of this study.

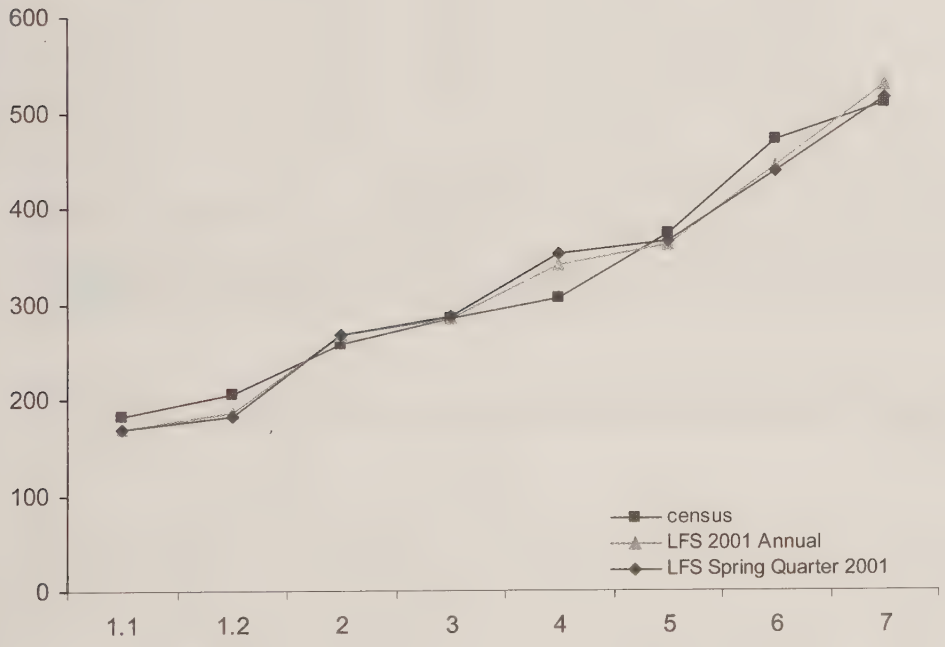
Mortality rates using LFS population denominators

The mortality rates for 2001 using the LFS, adjusted as described above, are compared with the published mortality rates in Figure 1.

Figure 1 **Mortality rates by NS–SEC[1], denominators based on Census[2] and LFS(2001)[3] estimates, men aged 25–64, 2001–03**

England and Wales

Rate per 100,000 person years



1 Reduced derivation
2 From White C, Glickman G, Johnson B and Corbin T (2007), Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03, Health Statistics Quarterly, 36[6]
3 Calculated from LFS estimated populations 2001, mid year census estimates 2001–03, death registrations 2001–03

It can be seen from Figure 1 that the pattern for the estimates based on annual LFS denominators follows the published (census-based) pattern fairly closely. The LFS-based estimates were lower for NS-SEC class 1.1, 1.2 and 6, and higher for NS-SEC class 4. Although the LFS-based

estimates were for most classes within a 6 per cent range of the census-based estimates, for all but one class the two estimates were statistically significantly different (Table 2).

Table 2 Mortality rate estimates by NS-SEC[1] and confidence intervals using published census-based population denominators[2] and LFS[3] populations for 2001

England and Wales — Rate per 100,000

NS-SEC analytic class	Published census based estimates			LFS 2001 estimates			Percentage difference[4]
	estimate	LCL	UCL	estimate	LCL	UCL	
1.1 Higher managerial	**182**	177	187	**168**	162	175	-7 **
1.2 Higher professional	**206**	202	211	**187**	181	193	-9 **
2 Lower managerial and professional	**259**	256	262	**269**	263	274	4 **
3 Intermediate	**286**	279	294	**285**	274	296	0
4 Self-employed and own-account	**307**	303	312	**342**	335	349	11 **
5 Lower supervisory	**374**	369	379	**363**	355	371	-3 *
6 Semi-routine	**473**	466	479	**446**	436	456	-6 **
7 Routine	**513**	508	519	**533**	523	543	4 **

1 Reduced derivation
2 From White C, Glickman G, Johnson B and Corbin T (2007), Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03, Health Statistics Quarterly, 36[6]
3 Calculated from LFS estimated populations 2001, mid year census estimates 2001–03, death registrations 2001–03.
4 Difference between the two estimates expressed as a percentage of the census based estimate.

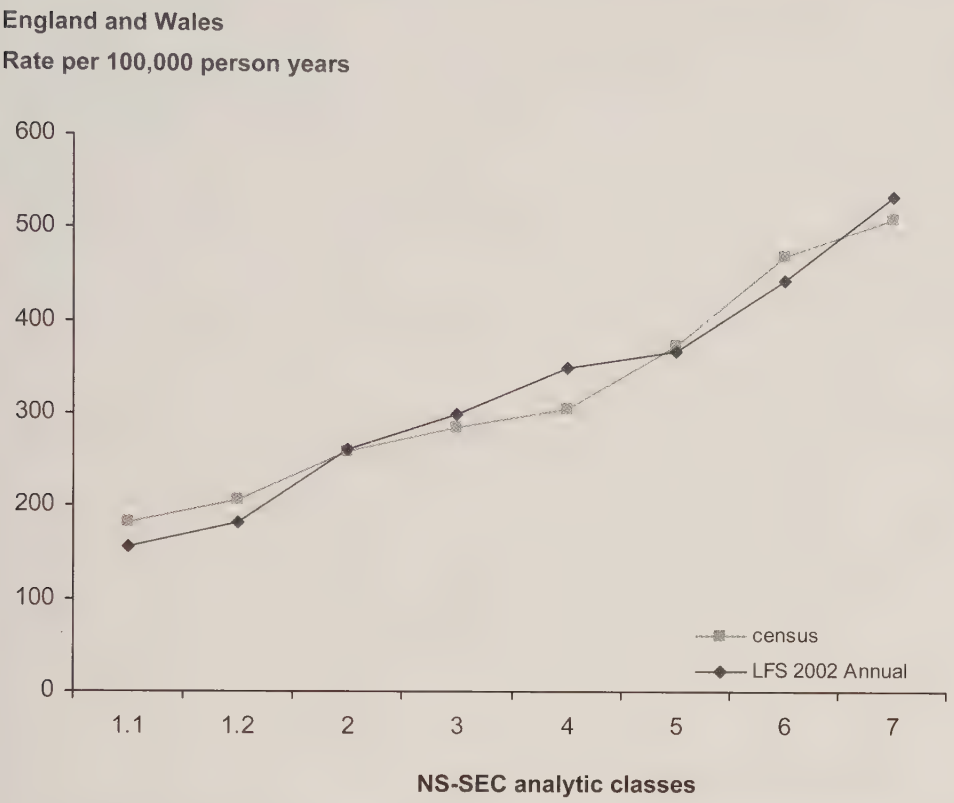
* indicates a statistically significant difference at the 5% level, ** indicates a statistically significant difference at the 1% level. (Statistical significance of the difference was tested using the standard errors of both estimates and assuming independence and normality)

The next stage was to compare results for 2002 and 2003 to see whether the 2001 pattern was repeated for particular classes.

Mortality rates for 2002 were calculated with identical numbers for deaths (2001–03) but with the population denominators estimated using the annual LFS dataset for 2002, together with the ONS mid-year population estimates for each age group. The same adjustments were made to the LFS populations as for 2001, to reflect the approach used for the census-based estimates.

Once again, mortality rates using census-based denominators were underestimated by the rates with LFS denominators for classes 1.1, 1.2 and 6, and overestimated for class 4 (Figure 2).

Figure 2 Mortality rates by NS–SEC[1], denominators based on Census[2] and LFS(2002)[3] estimates, men aged 25–64, 2001–03



1 Reduced derivation
2 From White C, Glickman G, Johnson B and Corbin T (2007), Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03, Health Statistics Quarterly, 36[5]
3 Calculated from LFS estimated populations 2002, mid year census estimates 2001–03, death registrations 2001–03

A similar pattern was shown for 2003 (Figure 3), although the overestimate of mortality rate for the self-employed class and the underestimate of the rate for the semi-routine class were both smaller than for 2001 and 2002.

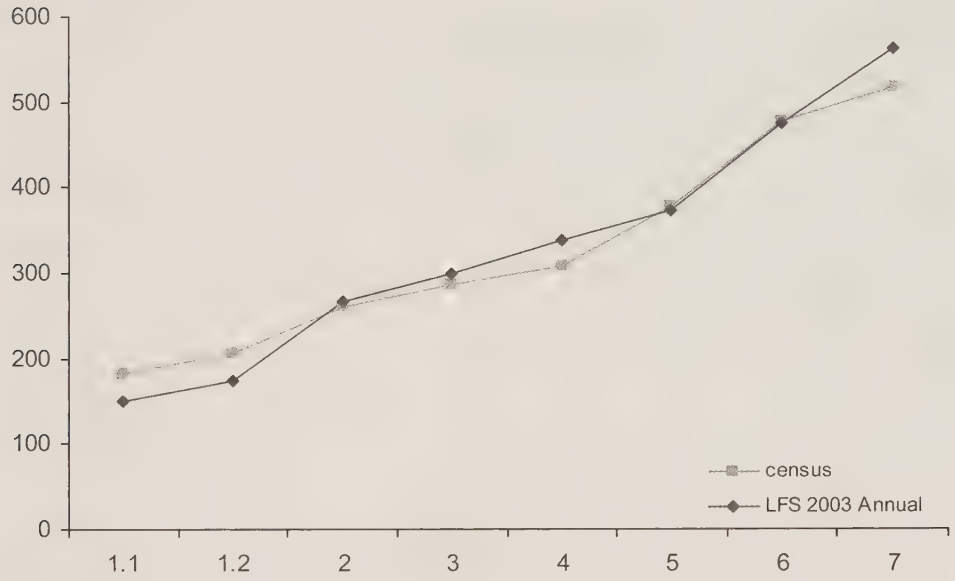
It seems from this evidence that there is a systematic pattern for the LFS-based estimates to underestimate mortality for the higher managerial and professional classes and, to a lesser extent, the semi-routine class. There also appears to be a systematic overestimate for the self-employed relative to the census-based estimates.

Estimates using aggregate LFS population estimates for the whole period 2001–03 are shown in Figure 4, where the pattern observed above is repeated.

Figure 3 Mortality rates by NS-SEC[1], denominators based on Census[2] and LFS(2003)[3] estimates, men aged 25–64, 2001–03

England and Wales

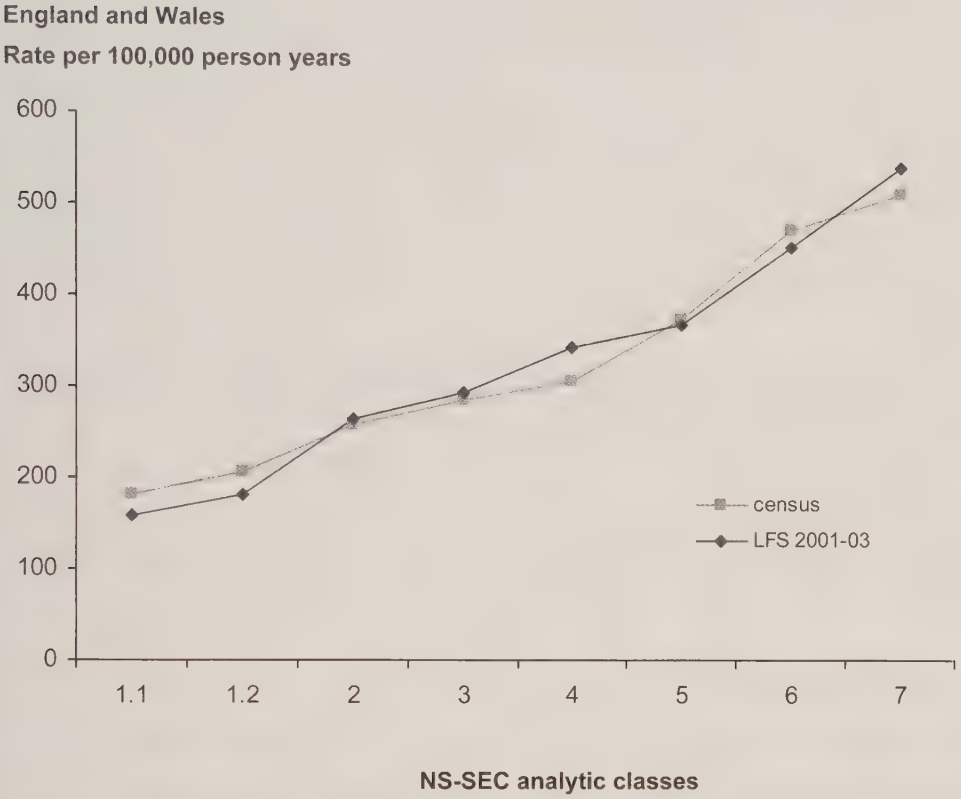
Rate per 100,000 person years



NS-SEC analytic classes

1 Reduced derivation
2 From White C, Glickman G, Johnson B and Corbin T (2007), Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03, Health Statistics Quarterly, 36[6]
3 Calculated from LFS estimated populations 2003, mid year census estimates 2001–03, death registrations 2001–03

Figure 4 **Mortality rates by NS-SEC[1], denominators based on Census[2] and LFS(2001–03)[3] estimates, men aged 25–64 2001–03**

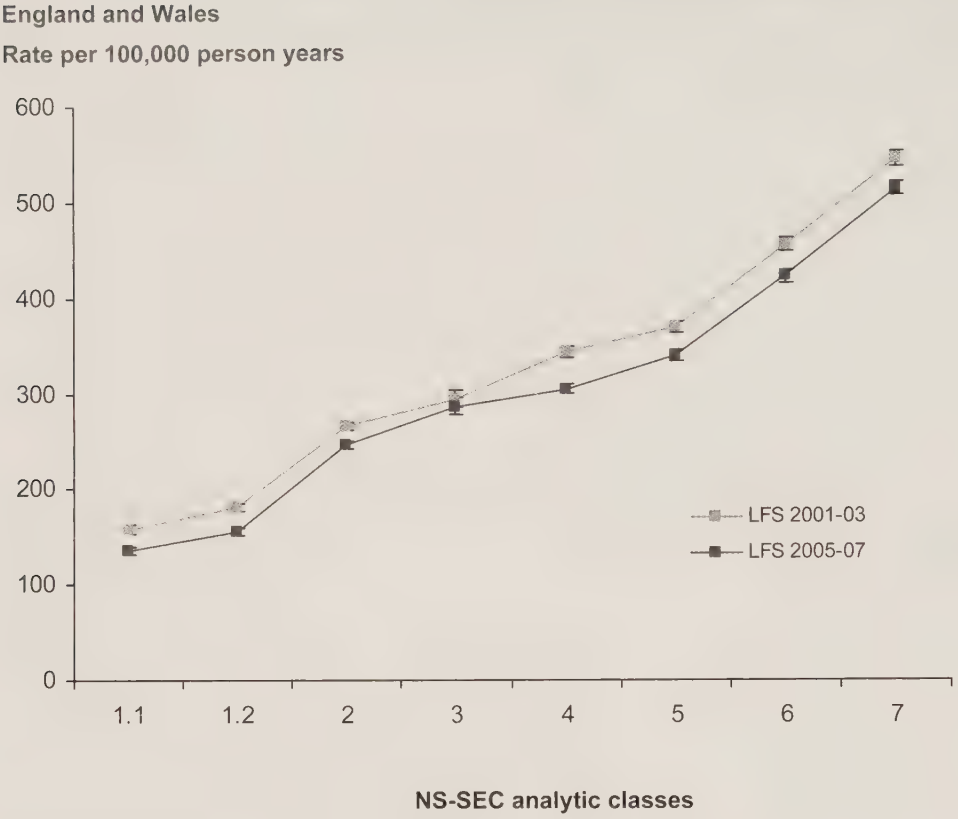


1 Reduced derivation
2 From White C, Glickman G, Johnson B and Corbin T (2007), Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001–03, Health Statistics Quarterly, 36[6]
3 Calculated from LFS estimated populations 2001–03, mid year census estimates 2001–03, death registrations 2001–03

Estimates for 2005–07 are shown in Figure 5 and compared with those for 2001–03.

It appears from Figure 5 that there was a general reduction in the mortality rate between the period 2001–03 and 2005–07. There appears to have been a statistically significant fall in mortality rates in most classes, at the 5 per cent level, but no discernible change for the 'intermediate' class. (This is a relatively small group and has wide confidence intervals).

Figure 5 **Mortality rates by NS-SEC[1], LFS(2001–03)[2] and LFS(2005–07)[3] based estimates, men aged 25–64**



1 Reduced derivation
2 Calculated from LFS estimated populations 2001–03, mid year census estimates 2001–03, death registrations 2001–03
3 Calculated from LFS estimated populations 2005–07, mid year census estimates 2005–07, death registrations 2005–07

Accuracies for sub-national geographies

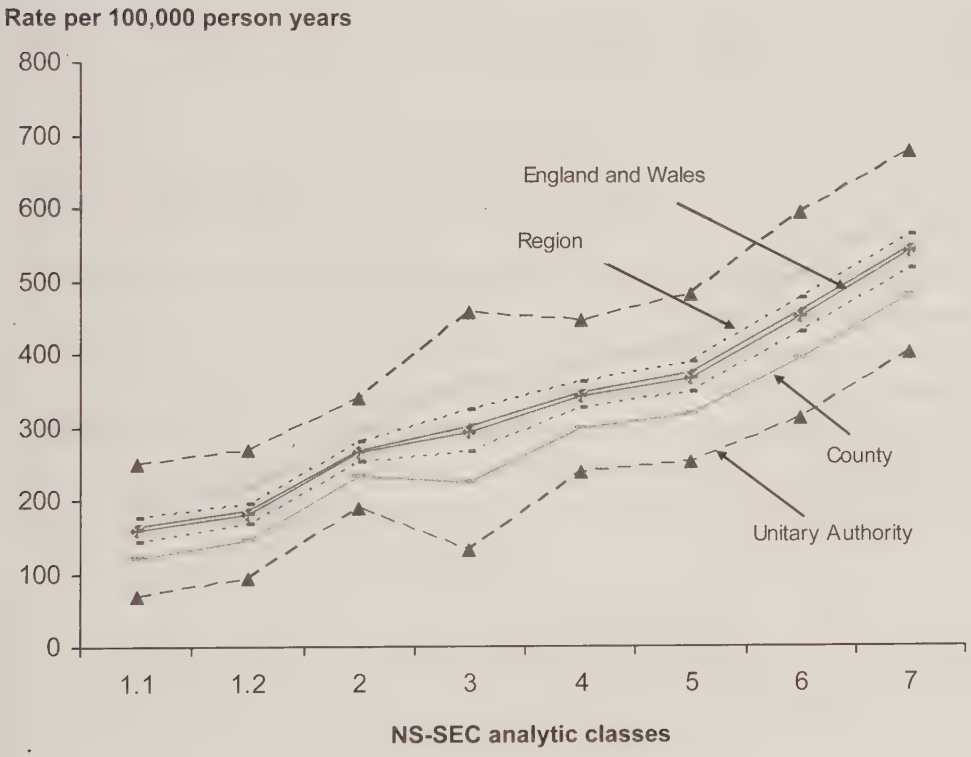
Approximate estimates of the variances were calculated for lower levels of geography, and confidence intervals are displayed in Table 3 and Figure 6.

Table 3 Typical confidence intervals for mortality rates of routine occupations class at different levels of geography, using the LFS for population denominators

Rate per 100,000

Geographical area	Estimated mortality rates	Three Year Period confidence interval		One Year Period confidence interval	
		+/- number	+/- per cent	+/- number	+/- per cent
England & Wales	542	8	1	10	2
Region	542	24	4	32	6
County	542	59	11	77	14
Unitary authority	542	138	26	183	34

Figure 6 Approximate confidence intervals for mortality rates by NSSEC based on a three-year period for different levels of geography



From Table 3 it can be seen that a typical confidence interval for the mortality rate of those in routine occupations, using a three-year data period, is approximately 1 per cent of the estimate, that is +/-8 deaths per 100,000. At a regional level the corresponding intervals are larger, and larger still at lower levels of geography. Figure 6 demonstrates how the confidence limits increase for all the analytic classes as area size decreases.

Discussion

The purpose of this study was to assess whether it is feasible to use LFS to produce intercensal denominators which are sufficiently stable and consistent over time to be used to monitor inequalities in mortality rates. In order to achieve this, the first test was to compare mortality rate estimates using LFS-based denominators with published ones using the 2001 Census.

The census and the LFS are known to differ in their population estimates for different groups. An article comparing population estimates from the April 2001 Census with the Spring Quarter 2001 LFS sample[4] found the following differences at the level of the UK:

- The LFS estimates suggested 2 per cent more economically active people than the census
- The LFS estimates suggested 7 per cent fewer economically inactive people than the census
- The LFS and the Census differed by 14 per cent (203,000) in the estimate of the number of people unemployed

The same article states that as 'The LFS covers all people in private households, but only covers certain types of communal establishments such as student halls of residence and NHS accommodation but not nursing homes, boarding houses and prisons...Given that most groups of people missing from the population estimates used to weight the LFS are likely to have higher proportions of economically inactive, this difference is more likely to affect the estimates of economic inactivity more than those for economic activity'[4]. The authors also found that estimates of the population by major occupation group for the census and the LFS were similar, but differed by as much as 11 per cent for certain groups.

While the results reported in this article are not directly comparable with those above, a similar pattern was found, with the LFS having a lower total population count within the age range studied but having a higher proportion capable of being assigned to a socioeconomic class. Thus there are known differences between census and LFS population estimates that will affect mortality rates calculated from the two sources.

The test of proximity of census and LFS-based mortality rate estimates was not passed. The estimates were statistically significantly different to the published census-based estimates for all but one NS-SEC class and the differences appeared to be systematic. The LFS estimates for 2001–03 consistently underestimated mortality for higher managers and professionals and overestimated mortality for the self-employed relative to those based on the census.

One possible explanation for this is the process of obtaining the LFS responses. Census respondents do not have an interviewer to explain the questions whereas LFS respondents do. This may lead to a number of census responses indicating self-employment when, had they been mediated by an LFS interviewer, they would have been classified as an employee. If true, this would produce a systematically higher estimate of the self-employed population in the census relative to the LFS, and thus a lower estimate of mortality rate for the same number of deaths.

While the LFS-based estimates of mortality rates differ from the census-based ones, they do appear to have internal consistency from year to year. The pattern of mortality rates over the classes in Figures 2–4 are very similar, and Figure 5 also demonstrates an almost parallel pattern

between 2001–03 and 2005–07. Thus the LFS-based estimates could feasibly be used to compare mortality from one three-year period to another, and possibly from year to year.

It would be technically possible to use changes over time in the LFS-based estimates for each class to update the estimates based on the 2001 Census. This would have the advantage that all estimates of mortality by NS-SEC published by ONS would be comparable, and would avoid possible confusion among users. However, the LFS-based and census based estimates are different, for reasons discussed above. Consequently this process would require the further assumption that movement in the LFS-based rates would also apply to the census-based estimates. The need to make this extra assumption, and the danger of introducing methodological artefacts in the adjustment process, are the reasons why this article recommends the use of the LFS-based estimates directly for the study of intercensal changes in mortality within socio-economic classes.

The usefulness of the LFS-based estimates to monitor changes due to policy might be assessed using the results shown in Table 3 together with some very broad assumptions. For example, if a policy was aimed at reducing the mortality rate of the least advantaged class, then by comparing three-year period estimates for England and Wales, differences of above 1.4 per cent between the two periods would be detectable. This is because confidence interval widths on the difference of two independent rates are approximately 1.4 times the width of the confidence limit of a single rate. This level of accuracy would seem to be more than sufficient for most applications, therefore the authors recommend the production, on an experimental basis, of a national series based on a three-year period. On the same basis when using a one-year period, only differences of the order of 2.8 per cent per annum could be detected. This may also be useful, particularly in comparisons of trends over a number of years, and therefore the authors also recommend the production, on an experimental basis, of an annual national series.

The usefulness of the regional estimates to monitor changes in the annual mortality rate is less clear. Since the confidence intervals for the three-year estimate are around plus or minus 4 per cent, the approximate confidence intervals for the difference in two estimates would be about 5.6 per cent. This may well be sufficient over a three-year period. On a similar basis, the confidence intervals for the difference in regional estimates for two single years would be 8.4 per cent. This is greater than the probable change in a given year and so could be deemed to be of marginal value. Therefore, the authors also recommend the production, on an experimental basis, of a regional series based on three-year periods only.

Extension of this approach to county districts suggests that changes in inequalities of less than 15.4 per cent (for a three-year period) would not be statistically detectable and this would appear to be of little use for any monitoring measure. For unitary authorities, the estimates would be even less precise.

Analysis of mortality rates for women

All the analysis presented in this article has been for men. This is because the individual datasets have information on occupation, employment status and (full) NS-SEC for individuals. These datasets also include women who were at the time or had recently been employed. However, the census-based published mortality rates for women by NS-SEC are based on a 'combined' classification[9], whereby the 'most advantaged' NS-SEC of the woman and her husband, (if she has

one), is used to represent the socio-economic position of the household. To produce estimates analogous to this, it would be necessary to link data for a woman to her husband's data – if such a person existed. From this, a 'combined' NS-SEC could be estimated for females. The technical feasibility of this process has been checked during the course of this work, but no analysis is presented here.

Should this work be developed, repeating the process for women will be a priority.

Limitations of the analysis

Certain assumptions were made in the course of this analysis. The principal ones were introduced as a result of the health selection adjustment, used to correct for the known bias in the assignment of populations to NS-SEC classes, and to place the estimates on the same basis as that used for the published census-based results. These were:

- The percentage of those unallocated to an NS-SEC analytic class to be reallocated to an analytic class varies over time in proportion to the numbers in these categories computed using the LFS for the corresponding period.
- The distribution across analytic classes of the reallocated population should be in the same proportions over time as those derived from tables published in the article in HSQ volume 36[6]. These redistributions will be in the same proportions across all age groups.

There is a case for not making these health selection adjustments. It could be argued that the year to year consistency of the LFS would best be maintained by not making such adjustments. The process would be simpler and require fewer assumptions. The case for proceeding as reported in this article is that health selection effects are real[10], even in cross-sectional analyses and to ignore them would invite a known bias. The authors favour the approach set out in this article because we feel it produces a more accurate picture of socio-economic inequalities.

Another assumption made was that those living in communal establishments and not counted by the LFS did not make a substantive difference in the distribution across NS-SEC analytic classes for men aged 25–64.

Other assumptions were made in the calculation of the confidence limits presented. Although adequate for the purposes of a feasibility study, the presented confidence intervals should be considered as indicative only.

Conclusions and Recommendations

The LFS can be used at the level of England & Wales to measure health inequalities by NS-SEC analytic class for men. National level estimates based on one or three year's deaths and population should be capable of providing useful estimates for the study of trends in health inequalities. This would also be feasible for the three-year period at the Government Office Region level. Below this level of geography, estimates would not be sufficiently reliable.

The mortality rates obtained for 2001–03 using the LFS are sufficiently different to the published census-based estimates for the results from the two systems not to be interchangeable. The LFS estimates would have to be related to each other rather than to the census-based ones.

Using a three-year average comparison, the LFS-based estimates show a statistically significant decrease in mortality rates over time between 2001–03 and 2005–07 across all but one NS-SEC analytic classes.

The technical feasibility of using the same approach to produce mortality rates by NS-SEC for women was tested, and found to be possible in terms of availability and linkage of data. No comparative analysis with the census was undertaken for women, but a similar analysis to that carried out for men would be a priority if this work were to be developed.

It is recommended that, following review of this paper and consultation with interested parties, a measure of mortality by NS-SEC using LFS-based denominators be created for years from 2001 to date at a national level for single years and for three-year periods. At a regional level, it is recommended that a series be produced based on three-year periods.

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Annex

Detailed description of methodology for estimating populations by age and NS-SEC using the LFS

1 Use of LFS dataset to produce estimates of private household population by age group and NS-SEC

The LFS has a variable relating to full NS-SEC but it was not possible to use it, since it was necessary to compute *reduced* NS-SEC, using only occupation and employment status, to be compatible with NS-SEC in death registrations. In addition, since the census classifies people by former occupation if they are not currently working, it was decided to derive an NS-SEC classification which took note of an LFS sample member's previous job if they were not currently employed.

Those identified as full-time students by LFS were classified as such in the analysis regardless of any occupation data associated with them.

Thus there were ten NS-SEC categories – eight occupied analytic classes, full-time students and 'other'.

The computations were performed in Stata and weighted to the total private household population estimates for the relevant year by applying the LFS system weighting variable.

2 Health selection adjustments for LFS data

The concept of 'occupation' used to derive socio-economic class for the purpose of estimating mortality rates in successive Registrar General's decennial supplements[10], is that in which the person is currently engaged or most recently was engaged, if not currently employed or economically active. This is partly because using only current occupation tends to understate those who are usually employed and makes classification more subject to macroeconomic fluctuations. In addition, death registration of necessity uses a definition which extends back in time. Thus occupation in this context is not restricted to the employed or even to the economically active. Most importantly, those in the most disadvantaged classes are less likely than the more advantaged to report a former occupation if sick, and this may lead to biased estimates if not adjusted.[10]

In the published estimates using census-based denominators, an adjustment was made to counteract a potential selection effect brought about because some of those in poor health may have been selected out of the labour market[6]. This adjustment was made using the ONS Longitudinal Study to estimate the proportion of those with no recorded occupation and therefore no analytic NS-SEC class in 2001, but who had a recorded occupation in 1991. The 1991 NS-SEC distribution of those in each age group unclassified at 2001 was used to redistribute population to the analytic NS-SEC classes. In order to compare results from the current study with the published ones, it was necessary to imitate the adjustments undertaken on the census-based denominators using the published adjustment for those with no occupation recorded in 2001. The adjustment process first estimates the number of people which should be redistributed from the residual to the

analytic classes, and then allocates to classes using the same distribution pattern as the census-based estimates.

3 Illustrative example of derivation of populations by age and NS-SEC using the LFS counts and ONS mid-year populations

The process of translating the raw LFS counts into population estimates comparable with the published census-based figures is shown for the Spring Quarter 2001 in Table A1.

Table A1 **Example showing method for the normalisation of the LFS population counts by NS-SEC to the ONS mid-year population 2001 and the 'health selection' transfer from the residual groups to the NS-SEC analytic classes, for methodological consistency with the published results using census-based denominators.**

England and Wales — Thousands

									Total of analytic groups sum (1.1 – 7)	ONS mid year population[1]	Un-allocated population	Proportion residual in optimised table[2]	Final residual	Others for reallocating across analytic groups
	LFS population counts by NS-SEC analytic class													
Age band	1.1	1.2	2	3	4	5	6	7	a	b	c = b - a	d	e = b x d	f = c - e
25-29	95	209	364	147	110	239	177	211	1,554	1,742	188	0.045	78	110
30-34	160	219	432	114	205	285	207	230	1,852	2,016	165	0.030	60	105
35-39	208	207	437	107	246	284	195	234	1,918	2,050	132	0.024	48	84
40-44	195	190	386	86	221	255	172	217	1,722	1,831	109	0.020	36	73
45-49	168	182	341	73	235	206	138	192	1,535	1,644	109	0.018	29	80
50-54	161	180	386	74	236	243	156	215	1,653	1,771	118	0.015	26	92
55-59	116	132	291	64	209	187	138	199	1,337	1,492	155	0.011	17	138
60-64	72	93	191	45	175	149	128	173	1,026	1,252	226	0.012	16	210
Total	**1,176**	**1,412**	**2,828**	**710**	**1,639**	**1,847**	**1,311**	**1,672**	**12,595**	**13,797**	**1,202**		**310**	**892**

1 ONS mid-year population estimates for 2001

2 White C, Glickman M, Johnson B and Corbin T (2007) 'Social inequalities in adult male mortality by the National Statistics Socio-Economic Classification, England and Wales, 2001-03, Health Statistics Quarterly 36, 6-23

The LFS based estimates for each NS-SEC analytic class are shown on the left-hand side of the table and the totals for each age group are shown in column a. The ONS mid-year population totals for 2001 are in column b and the difference (the 'unallocated' population), in column c.

In order to approximate the optimised estimates, it is necessary to simulate the transfer from the unallocated populations to the NS-SEC analytic classes, which was undertaken on the published census data using the health selection adjustment.

Firstly the proportion of the population in each age group which was to be assigned to the residual NS-SEC classes was set equal to that in the census-based 'optimised populations'.(column d in

Table A1). These proportions were multiplied by the ONS mid-year populations to obtain the numbers in the residual categories (column e). The remainder of the unallocated population is obtained by subtracting column e from column c.

Thus for example, the number unclassified aged 25-29 in the optimised population estimates was 4.5% of the total population[6]. Thus the population (in thousands) in the residual is 1742 x 4.5% = 78 (to the nearest thousand). The number available for reallocation is therefore equal to the population for the age group (1742) less the NS-SEC analytic group population estimated from the LFS estimates (1554) less 78 (equals 110).

The resultant population is then reallocated across NS-SEC classes according to the proportions estimated from the gain in person-years by each NS-SEC analytic group from the health selection adjustment in the published study using census-based denominators, (White C Glickman G, Johnson B and Corbin T (2007), Social Inequalities in adult male mortality by NS-SEC, England and Wales, 2001-03, Health Statistics Quarterly 36, Table 2[6]) These are shown in Box A1.

Following the obtaining of matrices of deaths and populations by age group and NS-SEC, the standardised mortality rates were calculated by reference to the European Standard Population.

Box A1 Percentage distribution of unclassified to analytical classes for 'health selection adjustment'

1.1	Large employers and higher managerial	2.0%
1.2	Higher professional	6.9%
2	Lower managerial and professional	15.5%
3	Intermediate	8.1%
4	Small employers and own account workers	10.1%
5	Lower supervisory and technical	10.3%
6	Semi-routine	20.6%
7	Routine	26.5%

The resultant population denominators in this example would be as in Table A2.

Table A2 Example showing resultant estimates of populations by NS-SEC and age for 2001, based on LFS counts 2001 mid-year population and the 'health selection' transfer from the unallocated groups to the NS-SEC analytic classes

England and Wales — Thousands

	LFS population counts by NS-SEC analytic class									Total
	1.1	1.2	2	3	4	5	6	7	Residual[1]	Population[2]
25-29	98	217	381	156	121	250	200	240	78	1,742
30-34	163	226	448	122	215	295	228	258	60	2,016
35-39	210	212	450	114	255	292	212	256	48	2,050
40-44	196	195	397	91	229	263	187	236	36	1,831
45-49	169	187	354	79	243	214	154	214	29	1,644
50-54	163	187	400	81	246	252	175	240	26	1,771
55-59	119	142	312	75	223	201	167	236	17	1,492
60-64	76	107	224	62	196	171	171	229	16	1,252
Total	1,193	1,473	2,966	782	1,729	1,939	1,495	1,909	310	13,797

1 As per Table A1

2 ONS mid-year population estimates for 2001, as per Table A1

Inequalities in healthy life expectancy by social class and area type: England, 2001–03

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Abstract

Background

Healthy life expectancy (HLE) is an important indicator which combines longevity with health status. This article examines inequalities in HLE by socio-economic position in England, and between Local Authorities (LAs) in the deprived 'Spearhead group' and other LAs.

Methods

Census and vital event data available from the ONS Longitudinal Study were used to calculate estimates of HLE based on general health status for each Registrar General's Social Class (RGSC) in 2001–03, in England as a whole and within the 'Spearhead group' and non-Spearhead LAs.

Results

A predominantly linear relationship was present with HLE increasing with rising social class. The differences observed in HLE at birth and at age 65 between people assigned to the professional and unskilled manual social classes were statistically significant and substantial, demonstrating a clear social inequality in the amount of life, the quality of those years lived, the absolute number of healthy life years, and thus the relative proportion of life spent in 'Good' or 'Fairly Good' health.

HLEs at birth were statistically significantly higher for women than for men in the non-Spearhead LAs for all social classes; however, in the 'Spearhead group' of areas higher HLEs in women were only present among the skilled non-manual, skilled manual and partly skilled social classes. This suggests that an interaction effect between sex and area in the level of HLE may be operating.

The magnitude of inequality in HLE between professionals and the unskilled manual class in the proportion of life spent in 'Good' or 'Fairly Good' health also varied between the 'Spearhead group' and non-Spearhead LAs: among men, a difference of 6.6 per cent was present in non-Spearhead LAs, compared with 10.6 per cent in the 'Spearhead group'; among women, the equivalent differences were 5.3 per cent and 7.6 per cent.

Conclusions

The within-class HLEs for men and women were lower in the 'Spearhead group' compared with the non-Spearhead LAs, and statistically significantly lower among the intervening social classes for men; among women they are significant for all social classes other than the professional class. The scale of inequalities shown is important for policy responses and understanding of differences in service needs.

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Introduction

Measuring the combined impact of mortality and health status provides greater insight into social differences in health than using measures relying solely on longevity. This article provides analyses of Healthy Life Expectancy (HLE) by the Registrar General's Social Class (RGSC) in England, and also compares the social patterns observed in those local authorities (LAs) which are in the Department of Health's 'Spearhead group' with other LAs. The 'Spearhead group' of LAs are those identified as the most deprived in England.

This analysis was funded by the Department of Health, as part of a wider programme of work focusing on the measurement of inequalities in health.

A companion article, in the same edition of Health Statistics Quarterly, presents a similar analysis for disability-free life expectancy (DFLE).

Background

The influence of socio-economic position and area characteristics on life chances and risk of illness has been the subject of detailed investigation during the last 30 years.[1,2,3,4,5] For example, the Office for National Statistics (ONS) has reported social differences in life expectancy (LE) by the RGSC between 1972–76 and 2001–05.[6,7,8,9] Further analyses reported inequalities in major causes of death and illness across a range of socio-economic characteristics including socio-economic position, tenure, car ownership and area deprivation;[10,11,12,13,14,15,16,17] while others separate out the effect of factors connected with the individual, such as lifestyle, housing tenure and social mobility, from the contextual effects of the area.[18,19,20,21] All these analyses found a clear social gradient, with those exposed to social disadvantage, however defined, experiencing a raised level of mortality or limiting long-term illness (LLTI) than more advantaged groups.

Since the 1990s, analyses of HLE have been widely reported. Ecological studies have investigated the influence of area deprivation on HLE, both in Great Britain[22,23,24] and abroad.[25,26] British results show that males and females living in the most deprived fifth of electoral wards spend twice as many years of life in poor general health, both in absolute (i.e. number of years) and relative (i.e. proportion of life) terms, compared with those living in the most affluent fifth of wards.[24] Analyses by administrative geography using the decennial census of population in 2001 observed a marked gap in HLE between local authority areas: those areas with higher LE also experienced higher HLE, suggesting individuals in areas with high LE are advantaged both in longevity overall and longevity in states of 'Good' or 'Fairly Good' general health.[27]

The Department of Health's 'Spearhead group' of LAs consists of those identified as the most deprived in England. The criteria were reported in the Government's Spending Review of 2004. The 'Spearhead group'[28] (see Annex, Table A1) consists of those LAs placed in the bottom fifth nationally in three or more of the following five indicators:

- Male LE at birth
- Female LE at birth
- Cancer mortality rate in the under 75s
- Cardiovascular disease mortality rate in the under 75s

- Index of Multiple Deprivation 2004 (local authority summary) average score

The objectives of this article are to report the pattern in HLE by socio-economic position, the scale of inequality in England, and to determine the consistency of this pattern and its scale between the 'Spearhead group' and non-Spearhead LAs.

Methods

Data source and study population

The results presented are based on the data available in the ONS Longitudinal Study (LS).[29,30] The LS is a 1 per cent representative sample of the population of England and Wales, containing linked census and life events records since 1971, including births, deaths and embarkations. The linking of census records enables researchers to take account of historical census characteristics of those LS members with census histories. In this research, use of linked individual data and household level data has facilitated the attribution of social class based on occupation and employment status for those without occupational details recorded at 2001, allowing these study members to be included in the analysis.

The selection criteria which were applied to select the study population for this analysis are shown in Box 1. The study population was followed for mortality and embarkation events occurring in the period 29 April 2001 until the end of December 2003; those LS members who left the country during the follow-up period contributed person years of risk up to the point of embarkation. Health status is determined using responses to the general health question included on the 2001 Census form and is assumed to remain constant throughout the entirety of the follow-up period.

Box 1 Selection criteria

All members of the ONS Longitudinal Study who:

- were enumerated at the Census of population in 2001 as resident in England
- could be assigned a valid RGSC class from their own census records or those of family members
- were traced at the National Health Service Central Register, ensuring the correct linkage of census and death records
- had a 2001 Census record containing a completed general health question with which to determine health status

A total of 510,365 LS members resident in England were enumerated at the 2001 Census: of these, 472,560 were traced at the National Health Service Central Register, could be allocated a social class, and had general health data available. Among the study population, a total of 12,091 deaths and 881 embarkations were recorded, and they contributed a total of 1,238,031 person years of risk.

In this analysis the person years of risk contributed, rather than the number of people included, were used to calculate all mortality and prevalence rates of 'Not Good' general health in order to reflect the duration of time in the given health state assumed, and take account of the ageing of the study population during follow-up.

Allocation of social class

Linked census records from 1971 onwards and the records of family members residing in the LS member's household were used to assign an RGSC class, based on an algorithm of assignment used previously in analyses of LE by social class.[9] The six RGSC classes used in this analysis, with examples of the occupations included in each class, are shown in Box 2.

Box 2 Registrar General's Social Class based on occupation

Class description	Examples of occupations:
Non-manual	
I Professional	Doctors, chartered accountants, professionally qualified engineers
II Managerial & technical/intermediate	Managers, journalists, school teachers
IIIN Skilled non-manual	Clerks, cashiers, retail staff
Manual	
IIIM Skilled manual	Supervisors of manual workers, plumbers, electricians, goods vehicle drivers
IV Partly skilled	Warehousemen, security guards, machine tool operators, care assistants, waiters and waitresses
V Unskilled	Labourers, cleaners and messengers

In allocating an RGSC social class, priority was given to the study member's own first reporting of occupation and employment status at a census. If an LS member's own social class was not available, social class was allocated on the basis of other household members in the following order: firstly, the member's spouse; secondly, the member's parents (father's or failing that mother's). For those study members aged less than 16 years in 2001, social class was assigned on the basis of parental social class reported in 2001 (father's or failing that mother's). This follows the approach to social class allocation used in analyses of LE by social class reported by ONS using the LS.[6,7,9]

Calculation of healthy life expectancy

The standard method, based on the Sullivan Life Table (the 'Sullivan method') was used to calculate HLE at birth and at age 65 for each social class for England as a whole and for those living in the 'Spearhead group' and non-Spearhead LAs in 2001. The steps in this calculation are

recorded in Box 3.

Box 3 The Sullivan method for calculating HLE

1 For each age/sex group obtain the life table schedules l_x and the expectation of life e_x for the period of interest. Calculate $_nL_x = e_x\, l_x - e_{x+n}\, l_{x+n}$ where $_nL_x$ is the conventional life table measure of the average number of years lived in the age interval **x** to **x+n**

2 Obtain the 'Not Good' health rate $_nd_x$ in each age group observed in a study population. Calculate the average number of persons aged **x** to **x+n** living in 'Good' or 'Fairly Good' health in each age/sex group as $_nLWD_x = {}_nL_x\,(1 - {}_nd_x)$

3 Calculate life expectancy in a state of 'Good' or 'Fairly Good' health as $HLE_x = (\Sigma_n LWD_x) / l_x$ and the summation is from age x upwards.

4 Calculate the variation in the precision due to the variance in the probability of the prevalence part of HLE and due to the variance in the mortality part of HLE

The variance in the mortality part of HLE is given as:

$$\sum_{x=0}^{W-1} \{l_x^{\,2}[(1-a_x)n(1-\pi_x) + HLE_{x+n}]^2\, S^2(p_x)\} / l_x^{\,2}$$

while the variance of the prevalence part is given as:

$$S^2(HLE_x) \approx \frac{1}{l_x^2} \sum_{x=0}^{W} L_x^2 \frac{\pi_x(1-\pi_x)}{N_x}$$

where N_x is the number of persons in the age interval taking part in the study

l_x is the probability of survival to age x

L_x is person years lived in the age interval in 'Good' or 'Fairly Good' health

π_x is the proportion of people in age interval in 'Not Good' health

Therefore, the total variance from which the standard errors and CIs are calculated is given as:

$$\sum_{x=0}^{W-1} \{l_x^{\,2}[(1-a_x)n(1-\pi_x) + HLE_{x+n}]^2\, S^2(p_x)\} / l_x^{\,2} + S^2(HLE_X)$$

The HLE measure is based on self-reported general health, making use of the 2001 Census general health question, as shown in Box 4.

The measure was computed at birth and at age 65 for each sex and social class in each area type (i.e. 'Spearhead group' and non-Spearhead LAs). The HLE estimates are calculated by combining age and sex specific mortality rates (life tables), with age and sex specific rates of 'Good' or 'Fairly Good' general health. HLE at birth is defined as the average number of years a new-born baby

would live in 'Good' or 'Fairly Good' health if he or she experienced the particular social class's age and sex specific mortality and general health prevalence rates (during the period of interest) throughout his or her life beyond birth.

This measure reflects the current mortality and general health experience among those assigned an RGSC social class: they do not indicate how long people in a specific social class can expect to live in future in 'Good' or 'Fairly Good' health. This is because mortality and general health rates are likely to change in the future; a person's socio-economic position may also change during their life.

Box 4 2001 Census general health question

Over the last 12 months would you say your health has on the whole been.....?

- Good
- Fairly Good
- Not Good

Those responding 'Good' and 'Fairly Good' were classified as in 'Good' general health

The extent of self-reporting of general health by household members across the age spectrum is uncertain. While those of working age are likely to have completed the individual census form themselves, it is likely that a significant proportion of those aged 15 years or younger will have had this question completed on their behalf by an adult household member.

Results

The results are described in three sections: firstly, a socio-demographic overview; secondly, HLE is reported by the RGSC class breakdowns for England as a whole; and thirdly, class-specific absolute and relative HLEs in the 'Spearhead group' are compared with those in the non-Spearhead LAs.

Socio-demographic overview

The distribution of deaths and person years of risk within the study population for each social class are presented in Table 1.

Table 1 Distribution of deaths and person years of risk by social class: England, 2001–03

	Men			Women		
RGSC	**Deaths**	**Person Years**	**% Person years**	**Deaths**	**Person Years**	**% Person years**
Non-manual	2,183	251,808.3	41.7	2,759	300,057.5	47.3
I Professionals	314	42,346.6	7.0	165	35,179.4	5.6
II Managerial and technical/ Intermediate	1,205	134,629.1	22.3	1,098	140,109.4	22.1
IIINM Skilled non-manual	664	74,832.6	12.4	1,496	124,768.7	19.7
Manual	3,819	352,382.3	58.3	3,330	333,782.4	52.7
IIIM Skilled manual	2,331	220,912.6	36.6	1,339	184,161.2	29.1
IV Partly skilled	1,041	96,910.2	16.0	1,439	113,347.0	17.9
V Unskilled	447	34,559.5	5.7	552	36,274.2	5.7
Total	**6,002**	**604,190.6**	**100.0**	**6,089**	**633,839.9**	**100.0**

The distribution of person years among men shows that the proportion of the study population assigned to a social class at the extremes of the RGSC scale (RGSC classes I and V) approximates to an eighth of the total population; the equivalent proportion among women is about a ninth of the population.

This socio-demographic pattern was largely repeated when examining the class distributions within the 'Spearhead group' and the non-Spearhead LAs (Tables 2 and 3). The proportion of men assigned to a manual social class (RGSC classes IIIM, IV and V) in the 'Spearhead group' was higher than in the non-Spearhead LAs: more than two-thirds in the former compared with approximately a half in the latter. There was also both a higher concentration of men assigned to the unskilled manual social class (RGSC class V) and a lower concentration of professional men (RGSC class I) in the 'Spearhead group' than the average for England as a whole (shown in Table 1).

Table 2 Distribution of deaths and person years of risk by social class in men: England, 2001–03

	'Spearhead group'			Non-Spearhead LAs		
RGSC	**Deaths**	**Person Years**	**% Person years**	**Deaths**	**Person Years**	**% Person years**
Non-manual	425	52,172.4	31.3	1,758	199,636.0	45.6
I Professionals	51	7,942.8	4.8	263	34,403.8	7.9
II Managerial and technical/ Intermediate	200	26,156.3	15.7	1,005	108,472.8	24.8
IIINM Skilled non-manual	174	18,073.2	10.8	490	56,759.4	13.0
Manual	1,240	114,544.7	68.7	2,579	237,837.7	54.4
IIIM Skilled manual	756	68,141.5	40.9	1,575	152,771.1	34.9
IV Partly skilled	322	32,812.2	19.7	719	64,098.0	14.7
V Unskilled	162	13,591.0	8.2	285	20,968.6	4.8
Total	**1,665**	**166,717.0**	**100.0**	**4,337**	**437,473.6**	**100.0**

Table 3 Distribution of deaths and person years of risk by social class in women: England, 2001–03

	'Spearhead group'			Non-Spearhead LAs		
RGSC	**Deaths**	**Person Years**	**% Person years**	**Deaths**	**Person Years**	**% Person years**
Non-manual	589	63,773.2	38.3	2,170	236,284.4	51.4
I Professionals	26	6,461.6	3.7	139	28,717.8	6.3
II Managerial and technical/ Intermediate	219	27,637.5	15.8	879	112,472.0	24.5
IIINM Skilled non-manual	344	29,674.1	17.0	1,152	95,094.6	20.7
Manual	1,129	110,631.1	63.4	2,201	223,151.7	48.6
IIIM Skilled manual	454	58,000.9	33.3	885	126,160.3	27.5
IV Partly skilled	435	38,388.5	22.0	1,004	74,958.9	16.3
V Unskilled	240	14,241.7	8.2	312	22,032.5	4.8
Total	**1,718**	**174,404.3**	**100.0**	**4,371**	**459,436.1**	**100.0**

For women, the contrast in the class distribution between the 'Spearhead group' and non-Spearhead LAs was less striking, but was consistently in the same direction as for men.

Healthy life expectancy by social class for England

A statistical overview of HLE at birth and at age 65 by RGSC is tabulated in the Annex, Table A2, and illustrated in Figures 1 and 2 below.

HLE in men at birth and at age 65 showed a more marked social class inequality than LE. At birth professional men could expect to live 6.7 years longer than unskilled men; the equivalent gap in HLE was 12.5 years.

The scale of differential in HLE at birth between the intervening classes in men is more constrained. For example, HLE between Social classes II and IIINM showed no significant difference, although classes II and IIINM had significantly higher HLE than men assigned to a manual social class (RGSC classes IIIM, IV and V).

At age 65 a gap of 6.4 years in HLE was present between professionals and the unskilled class. Professional men had significantly higher HLE and unskilled men significantly lower HLE, at birth and at age 65, compared with the intervening social classes.

Figure 1 **HLE at birth in years with 95% confidence intervals by sex and RGSC: England, 2001–03**

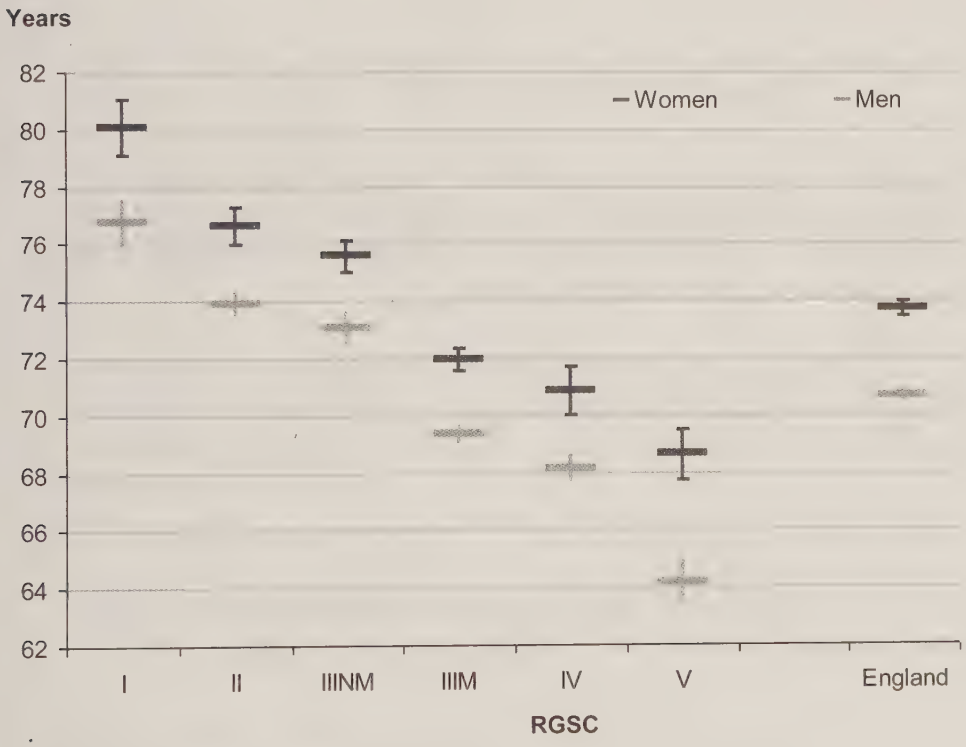
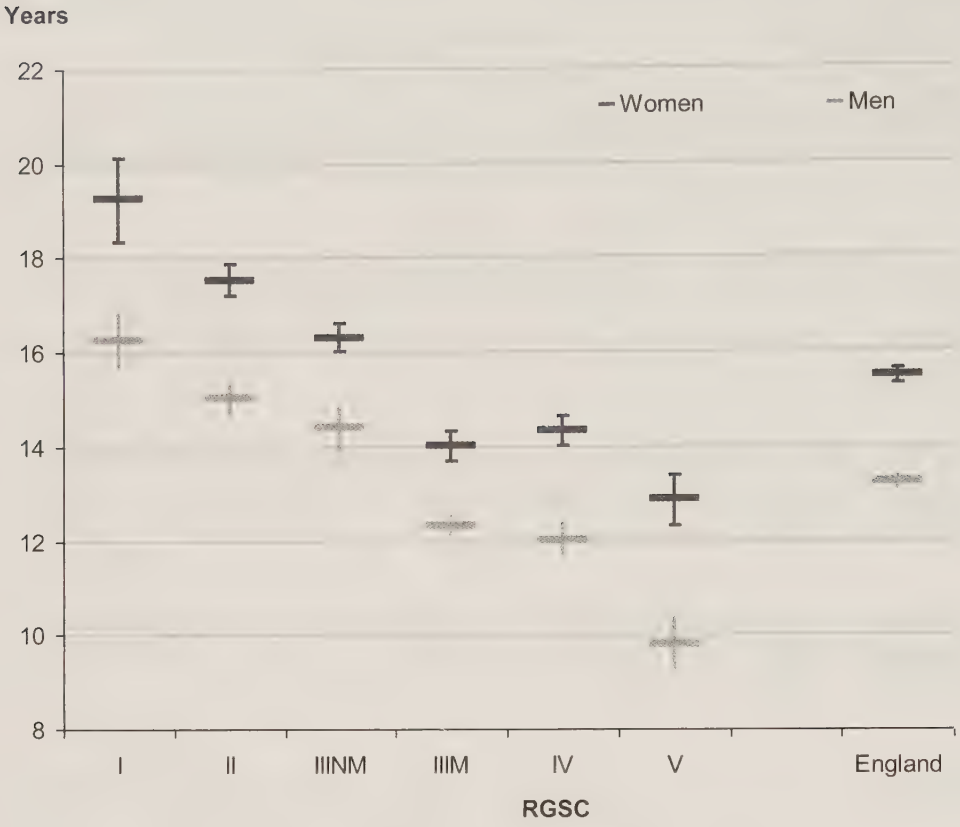


Figure 2 **HLE at age 65 in years with 95% confidence intervals by sex and RGSC: England, 2001–03**



For women, a similar social pattern is observed. The inequality in HLE at birth and at age 65 substantially exceeds the inequality in LE; professional women at birth could expect to live 80.0 years in 'Good' or 'Fairly Good' health, while HLE for unskilled women was only 68.6 years. At age 65, the gap in HLE between these classes amounted to 6.4 years.

The gradients in HLE both at birth and at age 65 between professionals and the unskilled are greater than those of LE (Table 4). At birth, approximately twice the magnitude; at age 65, the gradients are larger, but the difference between gradients in LE and HLE are more prominent among men than women.

Table 4 **Gradient in LE and HLE between professionals and the unskilled: men and women in England, 2001–03**

Sex	LE at birth	HLE at birth	LE at age 65	HLE at age 65
Men	1.09	1.20	1.31	1.66
Women	1.09	1.17	1.29	1.50

Healthy life expectancy by social class and LA 'Spearhead' status

The estimates of HLE at birth and at age 65 for RGSC classes in the 'Spearhead group' and non-Spearhead LAs are reported in the Annex, Table A3. The social pattern of HLE in both the 'Spearhead group' and Non-Spearhead LAs is largely consistent with the national pattern for England. However, the within-class level of HLE is lower in the 'Spearhead group'.

Among men in the professional and unskilled social classes, no statistically significant differences in HLE at birth between the 'Spearhead group' and non-Spearhead LAs were present. Among men in the other social classes, however, those residing in the 'Spearhead group' had a statistically significant lower HLE compared with those residing in non-Spearhead LAs (Figure 3).

Among women, in all social classes other than the professional class, statistically significant lower HLEs at birth were present in the 'Spearhead group' (Figure 4).

Figure 3 **HLE at birth in years by RGSC & Spearhead area status: men in England, 2001–03**

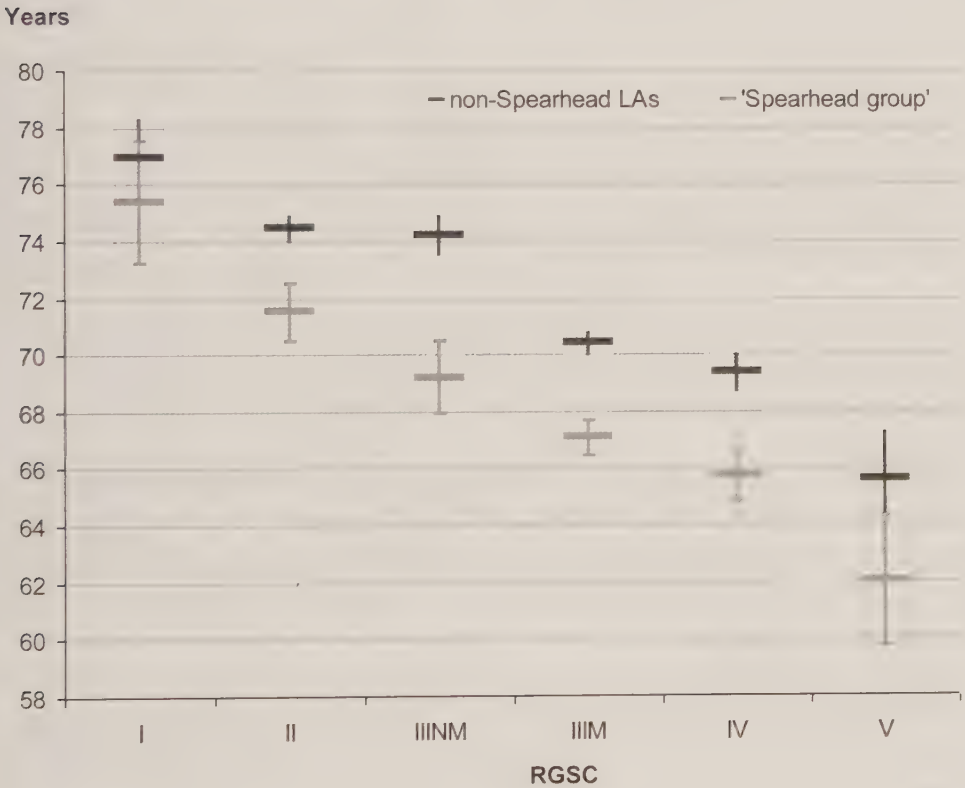
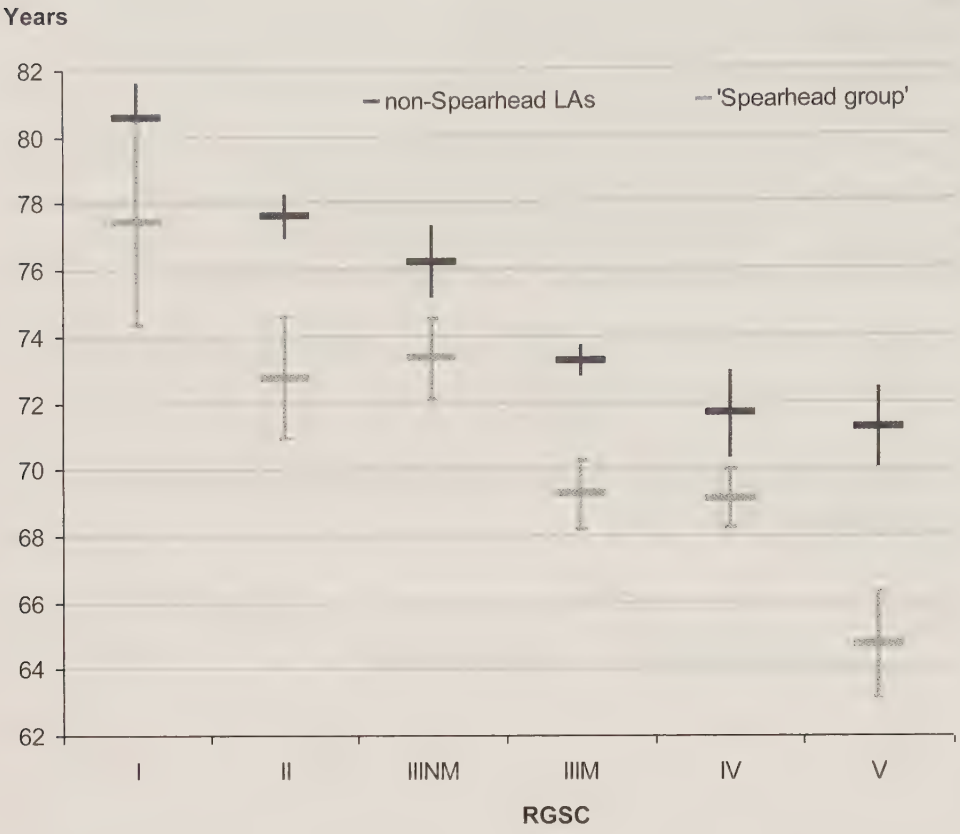


Figure 4 **HLE at birth in years by RGSC & Spearhead area status: women in England, 2001–03**



At age 65, skilled non-manual, skilled manual and partly skilled men had significantly lower HLE if resident in the 'Spearhead group'. Among women at age 65, all social classes other than the professional class had statistically significantly lower HLE in the 'Spearhead group' (Annex 3).

The highest HLE at birth was found among professional women living in the non-Spearhead LAs where expectation of life in 'Good' or 'Fairly Good' general health is 80.5 years. The lowest HLE of 62.0 years was found in unskilled men in the 'Spearhead group', representing a gap of 18.5 years in total. In general, the effect of living in the 'Spearhead group' was smaller than the effect of social class, but added to the magnitude of inequality.

The gap in HLE at birth between professional and unskilled men was greater in the 'Spearhead group' than the non-Spearhead LAs (Table 5), at 13.4 years in the former and only 11.4 years in the latter. A similar contrast is observed for women. At age 65, the gap was greater in the 'Spearhead group' only for women. Table 6 compares the differences in HLE for individuals living in the 'Spearhead group' and the non-Spearhead LAs within each social class, separately for men and women at birth and at age 65.

Table 5 Inequality in HLE at birth and at age 65 by 'Spearhead' classification: men and women in English LAs, 2001–03

non-Spearhead LAs	MEN		WOMEN	
RGSC	**HLE at birth**	**HLE at age 65**	**HLE at birth**	**HLE at age 65**
Professionals	77.0	16.4	80.5	19.6
Unskilled	65.6	10.3	71.2	13.9
Inequality gap	11.4	6.1	9.3	5.7
'Spearhead group'	**MEN**		**WOMEN**	
RGSC	**HLE at birth**	**HLE at age 65**	**HLE at birth**	**HLE at age 65**
Professionals	75.4	15.1	77.4	17.2
Unskilled	62.0	9.2	64.7	11.2
Inequality gap	13.4	5.9	12.7	6.0
Difference in gap between areas	2.0	-0.2	3.4	0.3

The second section of Table 6 reports the combined effect of social class and area. For HLE at birth in men and women there were differences of 15 and 16 years respectively between professionals in non-Spearhead LAs and the unskilled living in the 'Spearhead group'. The difference in the proportion of life spent in 'Good' or 'Fairly Good' health was between 9 and 12 per cent.

For HLE at age 65 in men and women, a difference of 7 and 8 years was present between professionals living in non-Spearhead LAs and the unskilled living in the 'Spearhead Group'. The comparable difference in the proportion of life spent in 'Good' or 'Fairly Good' health was approximately 23 per cent for men and 16 per cent for women.

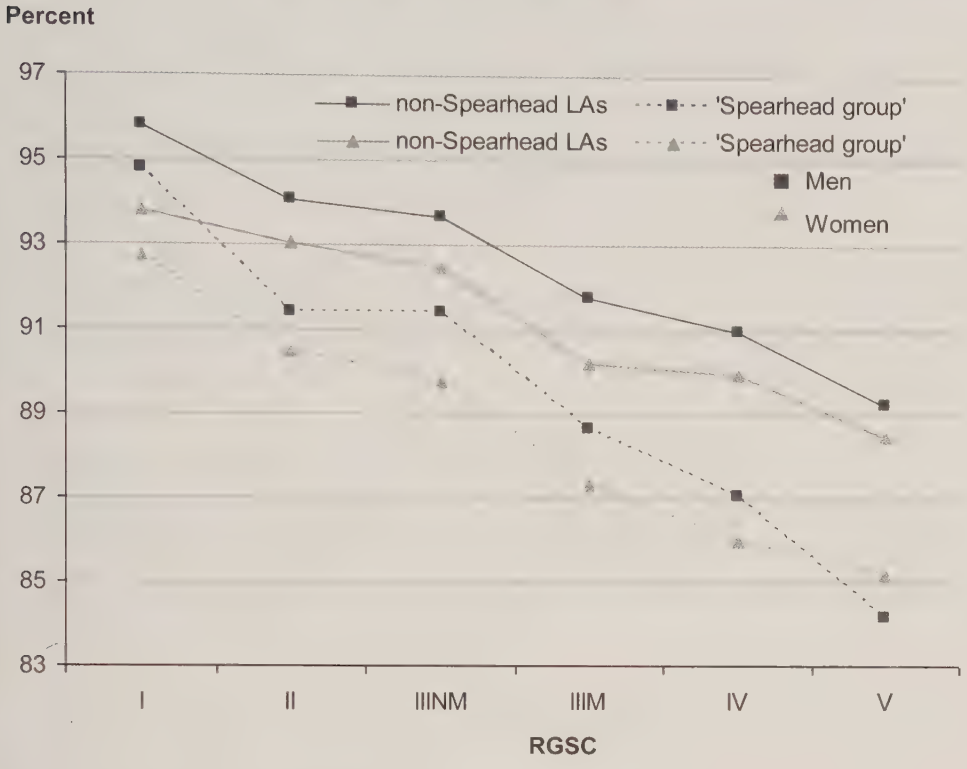
Relative differences in healthy life expectancy by LA 'Spearhead' status

The relative inequality between social classes and between the 'Spearhead group' and non-Spearhead LAs is also substantial, indicating that those in disadvantaged circumstances have not only a shorter expectation of life, but also a shorter expectation of life in 'Good' or 'Fairly Good' health (Figure 5).

Table 6 Differences in HLE at birth and at age 65 by RGSC between 'Spearhead' and non-Spearhead areas: men and women in English LAs, 2001–03

non-Spearhead – 'Spearhead' areas	Healthy Life Expectancy at Birth		Healthy Life Expectancy at age 65	
RGSC	**Years of life spent in good health**	**Proportion of life spent in good health**	**Years of life spent in good health**	**Proportion of life spent in good health**
Men				
I	1.6	1.0%	1.4	2.3%
II	2.9	2.7%	0.9	5.9%
IIINM	5.0	2.3%	2.0	4.5%
IIIM	3.3	3.1%	1.6	6.6%
IV	3.6	3.9%	1.1	6.2%
V	3.6	5.1%	1.1	7.2%
Women				
I	3.1	3.1%	2.4	-0.3%
II	4.9	4.9%	1.7	5.8%
IIINM	2.9	2.9%	1.6	6.0%
IIIM	4.0	4.0%	1.8	5.9%
IV	2.5	2.5%	1.6	7.4%
V	6.5	6.5%	2.7	7.2%
Inequalities by sex, RGSC and 'Spearhead' classification				
Professional men non-Sp - unskilled men 'Spearhead'	15.0	11.7%	7.3	23.2%
Professional women non-Sp - unskilled women 'Spearhead'	15.8	8.6%	8.4	16.4%
Professional women non-Sp - unskilled men 'Spearhead'	18.5	9.6%	10.5	18.5%

Figure 5 **Per cent of Life Expectancy at birth spent in 'Good' or 'Fairly Good' health by RGSC and 'Spearhead' classification: men and women in English LAs, 2001–03**

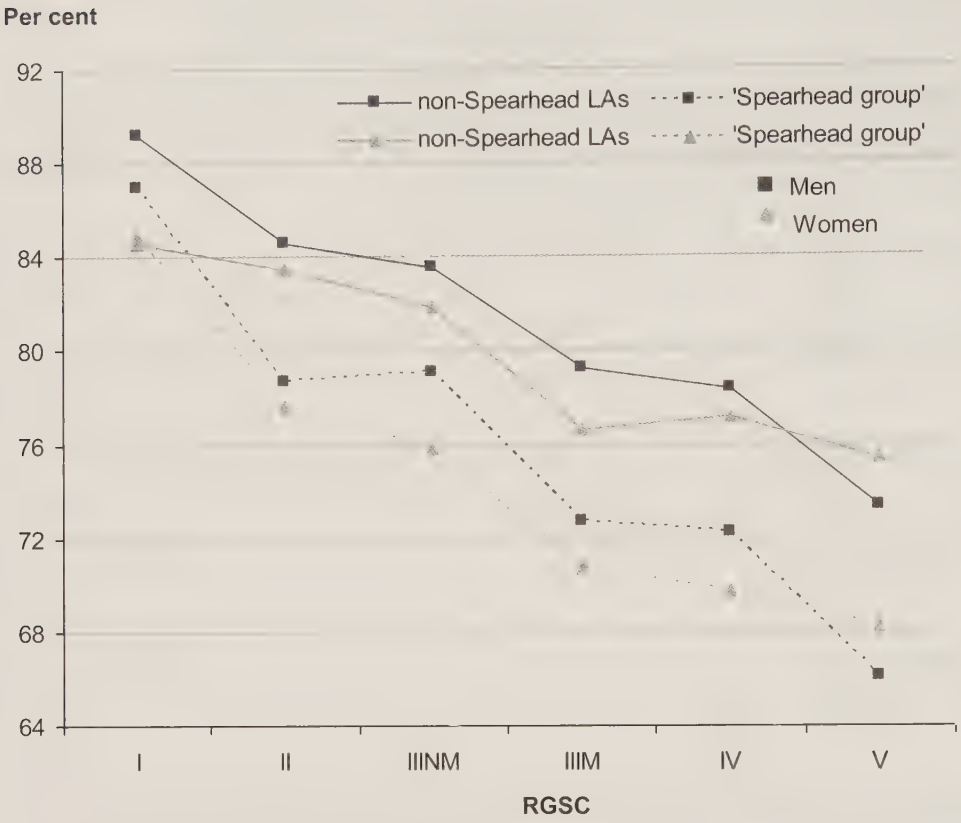


The results across social classes generally show that men, although living shorter lives than women, spend a higher proportion of their LE in states of 'Good' or 'Fairly Good' health, in each type of area. Both sexes predominantly conform to a pattern of deterioration in the proportion of LE spent in 'Good' or 'Fairly Good' health with increasing socio-economic disadvantage. The influence of area of residence is clearly present: for each social class, men and women experience higher proportions of life spent in 'Good' or 'Fairly Good' health if they live in a non-Spearhead LA; the magnitude of difference is most pronounced among unskilled men and women and least pronounced among professionals.

The magnitude of inequality between professionals and the unskilled in the proportion of life spent in 'Good' or 'Fairly Good' health also varied between the 'Spearhead group' and non-Spearhead LAs: among men, a difference of 6.6 per cent was present in non-Spearhead LAs, compared with 10.6 per cent in the 'Spearhead group'; among women, the equivalent differences were 5.3 per cent and 7.6 per cent respectively.

The deterioration in the proportion of LE spent in 'Good' or 'Fairly Good' health with increasing socio-economic disadvantage found at birth also applies at age 65; a clear relative disadvantage was present among men and women assigned to the manual social classes (RGSC classes IIIM, IV and V) compared with their counterparts assigned to the non-manual social classes (RGSC classes I, II and IIINM). Figure 6 shows HLE relative to LE for men and women at age 65 by social class in the 'Spearhead group' and non-Spearhead LAs.

Figure 6 **Per cent of Life Expectancy at age 65 spent in 'Good' or 'Fairly Good' health by RGSC and 'Spearhead' classification: men and women in English LAs, 2001–03**



At age 65, unskilled women experience higher proportions of their LE in 'Good' or 'Fairly Good' health compared with men; however, this is reversed for the other social classes in both the 'Spearhead group' and non-Spearhead LAs. The relative HLE of professional women was similar in the 'Spearhead group' to the non-Spearhead LAs, and in professional men, the difference between areas was slightly larger. For the other social classes a strong area type effect was present, with men and women living in the 'Spearhead group' clearly disadvantaged in the terms of the proportion of life expectancy spent in 'Good' or 'Fairly Good' health.

The scale of inequality between professionals and the unskilled manual class in relative HLE is higher at age 65 than at birth; the difference in the gap is also greater in the 'Spearhead group'. For men a difference of 20.9 per cent was found between professionals and the unskilled class; for women, the equivalent difference was 16.6 per cent.

Discussion

In this analysis HLE based on subjective well-being, as recorded by the 2001 Census question on general health, has been compared across RGSC social classes and a grouping of local authorities based on the Department of Health's Spearhead classification.

Healthy life expectancy by social class

The differences observed in HLE at birth and at age 65 between people assigned to the professional and unskilled manual social classes are statistically significant and substantial,

demonstrating a clear social inequality in the amount of life, the quality of those years lived, the absolute number of healthy life years, and thus the relative proportion of life spent in 'Good' or 'Fairly Good' health.

The results of this study suggest a broad four group classificatory pattern of HLE by socio-economic position for men and women at birth and at age 65:

- **Group 1 – Professional social class:** statistically significant higher HLE than all other social classes both in absolute years and relative to longevity

- **Group 2 – Managerial and technical and skilled non-manual social classes:** HLEs in these classes were largely similar to each other; were statistically significantly lower than professionals, but higher than the manual social classes

- **Group 3 – Skilled manual and partly skilled social classes:** most differences in HLE between these two classes were not statistically significant in women; however, among men differences were present in the non-Spearhead LAs and overall at the England level at birth, but not at age 65. These social classes had statistically significant higher HLE than those of the unskilled social class

- **Group 4 – Unskilled:** HLEs were statistically significantly lower than all other social classes

A clear gender divide in HLE was observed with women experiencing higher HLEs at birth and at age 65 than men in every social class. The level of social disparity in HLE is more marked among men than among women, both at birth and at age 65; with smaller gradients observed among women. This may reflect a different level of exposure to occupational hazards brought about by a more distinct occupational membership within specific manual social classes on the part of women, or dissimilar labour market participation profiles leading to lower durations of hazardous occupational exposures. In addition, the lower gradients in HLE found among women may reflect greater heterogeneity in the material circumstances of women assigned to the unskilled social class, compared with that of men, which can arise from differential socio-economic profiles of the spouses or partners.

Healthy life expectancy by social class and LA 'Spearhead' status

The influence of area on class specific HLE at birth has three distinct features:

- firstly, within class HLE was lower in the 'Spearhead group' of areas;
- secondly, HLE at birth was statistically significantly lower in the 'Spearhead group' of areas for women in all social classes other than professionals, while for men significant differences were restricted to the intervening social classes;
- thirdly, the disparity in HLE between the 'Spearhead group' of areas and the non-Spearhead LAs among women assigned to the unskilled social class was particularly marked and highly statistically significant, suggesting the combination of disadvantaged socio-economic position and residency in a disadvantaged area influences women's general health and mortality risk more than that of men.

The resilience, in terms of health status, of the professional class to unfavourable area circumstances found in this analysis is consistent with a threshold of social advantage effect found in previous analyses, which, once achieved, in terms of material affluence and social status, dominates or compensates for the health hazards associated with the area of residence.

HLEs at birth were statistically significantly higher for women than for men in the non-Spearhead LAs for all social classes; however, in the 'Spearhead group' of areas higher HLEs in women are only present among the skilled non-manual, skilled manual and partly skilled social classes. This suggests that an interaction effect between sex and area in the level of HLE may be operating.

Consequently, the comprehensive within class statistically significant higher HLEs experienced by women at the England level were only repeated for HLE at birth in the non-Spearhead LAs. The presence of sex differences in HLE in the 'Spearhead group' is dependent on socio-economic position.

The additive effect of sex, social class and area led to substantial absolute differences in HLE. A professional woman living in one of the non-Spearhead LAs at birth can expect to live 18.6 years longer in 'Good' or 'Fairly Good' health than a man assigned to the unskilled social class living in the 'Spearhead group' of areas.

The sex divide in the proportion of life spent in 'Good' or 'Fairly Good' health is largely inverted to the pattern in absolute differences. Men live shorter lives compared to women, but spend a higher proportion healthy. Consequently, the greater longevity of women is accompanied by longer durations in states of poor health. This suggests that the health and social care needs of women will exceed that of men in each social class and area.

Conclusion

This analysis reports HLE by socio-economic position and 'Spearhead' status, and establishes clear inequalities in the duration of subjective well-being. A predominant linear relationship is present with HLEs increasing with rising social class; however within class HLEs for men and women are lower in the 'Spearhead group' compared with the non-Spearhead LAs, and statistically significantly lower among the intervening social classes for men, and among women all social classes other than the professional class.

The classification of HLE into four distinct social groupings is useful in two respects: firstly, it extends the traditional measure of inequality between the extremes of the social scale by uncovering the presence of inequality between the adjacent social classes; and secondly, it helps to identify the different level of likely service need presented by these distinct groupings.

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Annex

Table A1 Spearhead Local Authority composition 2007

GOR	LA Code	LA Name	GOR	LA Code	LA Name
North East	35UD	Blyth Valley	YATH[1]	00CC	Barnsley
North East	35UG	Wansbeck	YATH[1]	00CX	Bradford
North East	20UB	Chester-le-Street	YATH	00CE	Doncaster
North East	20UD	Derwentside	YATH[1]	00FA	Kingston upon Hull, City of
North East	20UF	Easington	YATH[1]	00FC	North East Lincolnshire
North East	20UG	Sedgefield	YATH[1]	00CF	Rotherham
North East	20UJ	Wear Valley	YATH[1]	00DB	Wakefield
North East	00CH	Gateshead	YATH[1]	17UC	Bolsover
North East	00EB	Hartlepool	East Midlands	34UB	Corby
North East	00EC	Middlesbrough	East Midlands	00FN	Leicester
North East	00CJ	Newcastle upon Tyne	East Midlands	32UD	Lincoln
North East	00CK	North Tyneside	East Midlands	00FY	Nottingham
North East	00EE	Redcar and Cleveland	West Midlands	00CN	Birmingham
North East	00CL	South Tyneside	West Midlands	00CQ	Coventry
North East	00EF	Stockton-on-Tees	West Midlands	44UC	Nuneaton and Bedworth
North East	00CM	Sunderland	West Midlands	00CS	Sandwell
North West	16UC	Barrow-in-Furness	West Midlands	00GL	Stoke-on-Trent
North West	16UD	Carlisle	West Midlands	41UK	Tamworth
North West	00EX	Blackburn with Darwen	West Midlands	00CU	Walsall
North West	00EY	Blackpool	West Midlands	00CW	Wolverhampton
North West	00BL	Bolton	London	00AB	Barking and Dagenham
North West	30UD	Burnley	London	00AL	Greenwich
North West	30UG	Hyndburn	London	00AM	Hackney
North West	30UJ	Pendle	London	00AN	Hammersmith and Fulham
North West	30UM	Rossendale	London	00AP	Haringey
North West	00BM	Bury	London	00AU	Islington
North West	00BX	Knowsley	London	00AY	Lambeth
North West	00BY	Liverpool	London	00AZ	Lewisham
North West	00BN	Manchester	London	00BB	Newham
North West	00BP	Oldham	London	00BE	Southwark

North West	30UK	Preston	London	00BG	Tower Hamlets
North West	00BQ	Rochdale			
North West	00BR	Salford			
North West	00BZ	St. Helens			
North West	00ET	Halton			
North West	00BT	Tameside			
North West	00EU	Warrington			
North West	00BW	Wigan			
North West	00CB	Wirral			

[1] Yorkshire and the Humber

Table A2 Life expectancy and HLE at birth and at age 65 by Registrar General's Social Class: England, 2001-03

	Social Class	Life expectancy	Healthy life expectancy			
At Birth		**Years**	**Years**	**Lower 95 % confidence interval**	**Upper 95 % confidence interval**	**HLE as a proportion of LE (%)**
Men	I	80.2	76.7	75.9	77.6	95.6
	II	78.9	73.9	73.5	74.3	93.6
	IIINM	78.4	73.0	72.5	73.6	93.2
	IIIM	76.4	69.3	69.0	69.7	90.8
	IV	75.9	68.1	67.6	68.6	89.7
	V	73.5	64.2	63.3	65.0	87.3
England		77.1	70.7	70.5	70.9	91.6
UK 2001-03*		75.9	67.1	66.9	67.4	88.4
Women	I	85.5	80.0	79.1	81.0	93.7
	II	82.8	76.6	75.9	77.3	92.6
	IIINM	82.2	75.5	75.0	76.1	91.9
	IIIM	80.6	71.9	71.6	72.3	89.3
	IV	79.9	70.8	70.0	71.7	88.7
	V	78.7	68.6	67.7	69.5	87.2
England		81.3	73.7	73.4	74.0	90.6
UK 2001-03*		80.5	69.9	69.6	70.1	86.8
At age 65						
Men	I	18.3	16.2	15.6	16.9	88.9
	II	17.9	15.0	14.7	15.4	83.7
	IIINM	17.4	14.4	13.9	14.9	82.7
	IIIM	16.0	12.3	12.1	12.6	77.2
	IV	15.7	12.0	11.6	12.4	76.5
	V	13.9	9.8	9.2	10.4	70.5
England		16.5	13.2	13.0	13.4	79.8
UK 2001-03*		16.1	12.0	11.8	12.2	74.5
Women	I	22.7	19.2	18.3	20.1	84.7
	II	21.3	17.5	17.2	17.9	82.4
	IIINM	20.2	16.3	16.0	16.6	80.5
	IIIM	18.7	14.0	13.7	14.3	74.7
	IV	19.1	14.3	14.0	14.6	74.9

	V	17.6	12.8	12.3	13.4	72.8
England		19.7	15.4	15.3	15.6	78.2
UK 2001-03*		19.1	14.0	13.9	14.2	73.3

Note: UK 2001-03* Based on ONS standard HLE calculations published in HSQ 29, 59–62
www.statistics.gov.uk/downloads/theme_health/HSQ29.pdf

Table A3 Life expectancy and HLE at birth and at age 65, by RGSC in the 'Spearhead group' and non-Spearhead LAs: men and women in English LAs, 2001–03

	Life Expectancy				Healthy life expectancy					
At Birth	Years		Years		Lower 95 % confidence interval		Upper 95 % confidence interval		HLE as per cent of LE	HLE as per cent of LE
	non-Sp	SG	non-Sp	SG	non-Sp	SG	non-Sp	SG	non-Sp	SG
Men										
I	80.3	79.5	77.0	75.4	75.6	73.2	78.3	77.5	95.8	94.8
II	79.1	78.2	74.4	71.5	73.9	70.5	74.9	72.5	94.1	91.4
IIINM	79.2	75.7	74.2	69.2	73.5	67.9	74.9	70.4	93.7	91.4
IIIM	76.7	75.6	70.4	67.0	70.0	66.5	70.8	67.6	91.7	88.6
IV	76.2	75.4	69.3	65.7	68.7	64.8	70.0	66.5	91.0	87.1
V	73.5	73.6	65.6	62.0	63.9	59.7	67.3	64.3	89.2	84.2
All classes	77.6	75.9	71.9	67.5	71.6	67.1	72.1	67.9	92.6	88.9
England	77.1		70.6		70.4		70.9		91.6	
UK 2001-03*	75.9		67.1		66.9		67.4		88.4	
Women										
I	85.8	83.5	80.5	77.4	79.4	74.3	81.6	80.5	93.8	92.7
II	83.4	80.4	77.6	72.7	76.9	70.9	78.3	74.5	93.1	90.5
IIINM	82.4	81.7	76.2	73.3	75.1	72.1	77.3	74.5	92.5	89.8
IIIM	81.2	79.3	73.2	69.2	72.7	68.2	73.7	70.2	90.2	87.3
IV	79.6	80.4	71.6	69.1	70.3	68.2	72.9	69.9	89.9	86.0
V	80.5	75.9	71.2	64.7	70.0	63.1	72.4	66.2	88.5	85.2
All classes	81.9	79.8	75.0	70.2	74.7	69.7	75.3	70.8	91.6	88.0
England	81.3		73.7		73.4		74.0		90.6	
UK 2001-03*	80.5		69.9		69.6		70.1		86.8	
At age 65										
Men										
I	18.4	17.3	16.4	15.1	15.8	13.6	17.1	16.6	89.2	87.0
II	17.9	18.1	15.2	14.3	14.8	13.4	15.5	15.1	84.6	78.7
IIINM	17.7	16.2	14.8	12.8	14.3	11.9	15.4	13.8	83.5	79.1
IIIM	16.2	15.5	12.8	11.2	12.6	10.8	13.1	11.6	79.2	72.7
IV	15.8	15.6	12.4	11.3	11.9	10.6	12.8	12.0	78.4	72.2
V	14.0	13.9	10.3	9.2	9.5	8.3	11.0	10.1	73.3	66.1

All classes	16.8	15.9	13.7	11.8	13.5	11.5	13.9	12.1	81.7	74.3
England	16.5		13.2		13.0		13.4		79.8	
UK 2001-03*	16.1		12.0		11.8		12.2		74.5	
Women										
I	23.2	20.3	19.6	17.2	18.7	14.2	20.5	20.2	84.6	84.9
II	21.4	20.9	17.8	16.2	17.5	15.4	18.2	17.0	83.4	77.6
IIINM	20.4	19.8	16.7	15.0	16.3	14.4	17.0	15.7	81.9	75.8
IIIM	19.0	18.1	14.6	12.8	14.2	12.3	15.0	13.4	76.6	70.7
IV	19.2	19.0	14.8	13.2	14.5	12.7	15.2	13.8	77.2	69.7
V	18.5	16.5	13.9	11.2	13.2	10.4	14.7	12.0	75.4	68.2
All classes	20.1	18.8	16.1	13.7	15.9	13.4	16.3	14.0	80.1	72.8
England	19.7		15.4		15.3		15.6		78.2	
UK 2001-03*	19.1		14.0		13.9		14.2		73.3	

non-Sp = non-Spearhead LAs; SG = 'Spearhead group'

UK 2001-03* Based on ONS standard Health Expectancies calculations published in HSQ 29, 59–62
www.statistics.gov.uk/downloads/theme_health/HSQ29.pdf

Inequalities in disability-free life expectancy by social class and area type: England, 2001–03

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Abstract

Background

Disability-free life expectancy (DFLE) is an important indicator which combines longevity with functional health status. This article examines inequalities in DFLE by socio-economic position in England, and between Local Authorities (LAs) in the deprived 'Spearhead group' and other LAs.

Methods

Census and vital event data available from the ONS Longitudinal Study were used to calculate estimates of DFLE based on limiting long-term illness or disability status for each Registrar General's Social Class (RGSC) in 2001–03, in England as a whole and within the 'Spearhead group' and non-Spearhead LAs.

Results

A predominantly linear relationship was present with DFLE increasing with rising social class. The differences observed in DFLE at birth and at age 65 between people assigned to the professional and unskilled manual social classes were statistically significant and substantial, demonstrating a clear social inequality in the amount of life, the functional health status during those years lived, their absolute number, and thus the relative proportion of life spent free from a limiting long-term illness or disability.

Among professional men, no statistically significant differences in DFLE at birth were found between the 'Spearhead group' and the non-Spearhead LAs. However, men assigned to the other social classes in the 'Spearhead group' were disadvantaged in terms of lower DFLE than their counterparts in the non-Spearhead LAs. Manual women living in non-spearhead LAs had comparable DFLE to women assigned to the managerial and technical and skilled non-manual social classes living in the 'Spearhead group'.

The magnitude of inequality in DFLE at birth between professionals and the unskilled manual class in the proportion of life spent free of a limiting long-term illness or disability also varied between the 'Spearhead group' and non-Spearhead LAs: among men, a difference of 7.7 per cent was present in non-Spearhead LAs, compared with 13.1 per cent

in the 'Spearhead group'; among women, the equivalent differences were 5.2 per cent and 9.4 per cent.

Conclusions

These results confirm that the assumptions made with regard to sex differences in DFLE need to be set in the context of socio-economic position, and assumptions made regarding sex and social differences need to set in the context of geography. The scale of the inequalities shown is important for policy responses and understanding of differences in service needs.

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Figure 6 Per cent of life expectancy at age 65 spent free of LLTID by RGSC and 'Spearhead' classification: men and women in English LAs, 2001–03 72

Introduction

Measuring the combined impact of mortality and functional health status provides greater insight into social differences in health than measures relying solely on longevity. This article provides analyses of Disability-Free Life Expectancy (DFLE) by the Registrar General's Social Class (RGSC) in England, and also compares the social patterns observed in those local authorities (LAs) which are in the Department of Health's 'Spearhead group' with other LAs. The 'Spearhead group' are those identified as the most socio-economically deprived LAs in England.

This analysis was funded by the Department of Health, as part of a wider programme of work focusing on the measurement of inequalities in health.

A companion article, in the same edition of Health Statistics Quarterly, presents a similar analysis for healthy life expectancy (HLE).

Background

Since the 1990s, analyses of DFLE have been widely reported; ecological studies have investigated the influence of area deprivation and DFLE, both in Great Britain[1,2,3] and abroad.[4,5] British results show that males and females living in the least deprived twentieth of electoral wards in 2001 live an additional 14.1 years disability-free than those living in the most deprived twentieth.[3] Analyses by administrative geography using the decennial census of population in 2001 observed a marked gap in DFLE between local authority areas: those areas with higher life expectancy (LE) also experienced higher DFLE, suggesting individuals in areas with high LE are advantaged both in longevity overall and longevity without disability.[6]

Previous analyses of occupation-based social differences in health expectancy in Great Britain found that men in professional occupations lived nine more years free of disability than men working in unskilled manual occupations,[7] representing a more substantial inequality than the difference in life expectancy.[8,9,10] Consequently, the magnitude of social inequality in functional health status is somewhat hidden in comparisons restricted to longevity alone. The Medical Research Council funded Cognitive Function and Ageing Study found the prevalence of disability among men occupying RGSC social classes I and II to be lower at ages 65–69 than those occupying social classes III-V; while professionals and managers can expect to live a further 14 years disability-free, those occupying the other social classes only experienced a further 11.5 years on average. For women the disparity was smaller but still present.[11]

The Department of Health's 'Spearhead group' of LAs consists of those identified as the most socio-economically deprived in England. The criteria were reported in the Government's Spending Review of 2004. The 'Spearhead group'[12] consists of those LAs placed in the bottom fifth nationally in three or more of the following five indicators:

- Male LE at birth
- Female LE at birth
- Cancer mortality rate in the under 75s
- Cardiovascular disease mortality rate in the under 75s
- Index of Multiple Deprivation 2004 (local authority summary) average score

For a list of LAs included in the 'Spearhead group', see Table A1 in the Annex of the companion article on healthy life expectancy in the same issue of Health Statistics Quarterly.

The objectives of this article are to report the pattern in DFLE by socio-economic position and scale of inequality in England, and to determine the consistency of this pattern and its scale between the 'Spearhead group' and non-Spearhead LAs.

Methods

Data source and study population

The results presented are based on the data available in the ONS Longitudinal Study (LS).[13,14] The LS is a 1 per cent representative sample of the population of England and Wales, containing linked census and life events records since 1971, including births, deaths and embarkations. The linking of census records enables researchers to take account of historical census characteristics of those LS members with census histories. In this research, use of linked individual data and household level data has facilitated the attribution of social class based on occupation and employment status for those without occupational details recorded at 2001, allowing these study members to be included in the analysis.

The selection criteria which were applied to select the study population for this analysis are shown in Box 1. The study population was followed for mortality and embarkation events occurring in the period 29 April 2001 until the end of December 2003; those LS members who left the country during the follow-up period contributed person years of risk up to the point of embarkation. Functional health status was determined using responses to the limiting long-term illness or disability (LLTID) question included on the 2001 Census form and was assumed to remain constant throughout the entirety of the follow-up period.

Box 1 Selection criteria

All members of the ONS Longitudinal Study who:

- were enumerated at the Census of population in 2001 as resident in England
- could be assigned a valid RGSC class from their own census records or those of family members
- were traced at the National Health Service Central Register, ensuring the correct linkage of census and death records
- had a 2001 Census record containing a completed limiting long-term illness or disability question with which to determine disability status

A total of 510,365 LS members resident in England were enumerated at the 2001 Census: of these, 472,560 were traced at the National Health Service Central Register, could be allocated a social class, and had limiting long-term illness or disability (LLTID) data available. Among the study

population, a total of 12,091 deaths and 881 embarkations were recorded, and they contributed a total of 1,238,031 person years of risk.

In this analysis the person years of risk contributed, rather than the number of people included, were used to calculate all mortality and prevalence rates of LLTID in order to reflect the duration of time in the given health state assumed, and take account of the ageing of the study population during follow-up.

The allocation of social class

Linked census records from 1971 onwards and the records of family members residing in the LS member's household were used to assign an RGSC class, based on an algorithm of assignment used previously in analyses of LE by social class.[9] The six RGSC classes used in this analysis, with examples of the occupations included in each class, are shown in Box 2.

Box 2 Registrar General's Social Class based on occupation

Class description	Examples of occupations:
Non-manual	
I Professional	Doctors, chartered accountants, professionally qualified engineers
II Managerial & technical/intermediate	Managers, journalists, school teachers
IIIN Skilled non-manual	Clerks, cashiers, retail staff
Manual	
IIIM Skilled manual	Supervisors of manual workers, plumbers, electricians, goods vehicle drivers
IV Partly skilled	Warehousemen, security guards, machine tool operators, care assistants, waiters and waitresses
V Unskilled	Labourers, cleaners and messengers

In allocating an RGSC social class, priority was given to the study member's own first reporting of occupation and employment status at a census. If an LS member's own social class was not available, social class was allocated on the basis of other household members in the following order: firstly, the member's spouse; secondly, the member's parents (father's or failing that mother's). For those study members aged less than 16 years in 2001, social class was assigned on the basis of parental social class reported in 2001 (father's or failing that mother's). This follows the approach to social class allocation used in analyses of LE by social class reported by ONS using the LS.[8,9,10]

Calculation of disability-free life expectancy

The standard method, based on the Sullivan Life Table[15] (the 'Sullivan method') was used to calculate DFLE at birth and at age 65 for each social class for England as a whole and for those living in the 'Spearhead group' and non-Spearhead LAs in 2001. The steps in this calculation are recorded in Box 3 below.

Box 3 The Sullivan method for calculating DFLE

1 For each age/sex group obtain the life table schedules l_x and the expectation of life e_x for the period of interest. Calculate $_nL_x = e_x\, l_x - e_{x+n}\, l_{x+n}$ where $_nL_x$ is the conventional life table measure of the average number of years lived in the age interval **x** to **x+n**

2 Obtain the LLTID rate $_nd_x$ in each age group observed in a study population. Calculate the average number of persons aged **x** to **x+n** living free of LLTID in each age/sex group as $_nLWD_x = {}_nL_x\,(1 - {}_nd_x)$

3 Calculate life expectancy without LLTID as $DFLE_x = (\Sigma_n LWD_x) / l_x$ and the summation is from age x upwards

4 Calculate the variation in the precision due to the variance in the probability of the prevalence part of DFLE and due to the variance in the mortality part of DFLE

The variance in the mortality part of DFLE is given as

$$\sum_{x=0}^{W-1} \{l_x^{\,2}[(1-a_x)n(1-\pi_x) + DFLE_{x+n}]^2\, S^2(p_x)\} / l_x^{\,2}$$

while the variance of the prevalence part is given as:

$$S^2(DFLE_X) \approx \frac{1}{l_x^{\,2}} \sum_{X=0}^{W} L_x^{\,2} \frac{\pi_x(1-\pi_x)}{N_x}$$

where N_x is the number of persons in the age interval taking part in the study

l_x is the probability of survival to age x

L_x is person years lived in the age interval free of LLTID

π_x is the proportion of people in age interval with LLTID

Therefore, the total variance from which the standard errors and CIs are calculated is given as:

$$\sum_{x=0}^{W-1} \{l_x^{\,2}[(1-a_x)n(1-\pi_x) + DFLE_{x+n}]^2\, S^2(p_x)\} / l_x^{\,2} + S^2(DFLE_X)$$

The DFLE measure is based on self-reported LLTID, making use of the 2001 Census question, as shown in Box 4.

The measure was computed at birth and at age 65 for each sex and social class in each area type (i.e. 'Spearhead group' and non-Spearhead LAs). The DFLE estimates are calculated by combining age and sex specific mortality rates (life tables), with age and sex specific rates of LLTID. DFLE at birth is defined as the average number of years a new-born baby would live free of a LLTID if he or she experienced the particular social class's age-specific mortality and LLTID prevalence rates (as measured in 2001) throughout his or her life beyond birth.

This measure reflects the current mortality and LLTID experience among those assigned an RGSC social class: they do not indicate how long people in a specific social class can expect to live in future free of a LLTID. This is because mortality and LLTID rates are likely to change in the future; a person's socio-economic position may also change during their life.

Box 4

2001 Census Limiting long-term illness or disability question

Do you have any long-term illness, health problem or disability which limits your daily activities or the work you can do? Include problems which are due to old age

- Yes
- No

Those responding 'Yes' were classified as having a limiting long-term illness or disability

The extent of self-reporting of LLTID by household members across the age spectrum is uncertain. While those of working age are likely to have completed the individual census form themselves, it is likely that a significant proportion of those aged 15 years or younger will have had this question completed on their behalf by an adult household member.

Results

The results are described in two sections: firstly, DFLEs are reported for England by the RGSC expanded class breakdowns; secondly, class specific DFLEs in English 'Spearhead group' LAs were compared with DFLE in non-Spearhead English LAs. For a socio-demographic overview, please see the companion article on healthy life expectancy in the same issue of Health Statistics Quarterly.

Disability-free life expectancy by social class

A statistical overview of DFLE at birth and at age 65 by RGSC is tabulated in Table A1 in the Annex, and pictorially represented in Figures 1 and 2 below.

Male DFLE at birth and at age 65 showed a pronounced social inequality (Figures 1 and 2), clearly exceeding the gradient in LE (Table 1). Professional men at birth could expect to live 13.4 years longer free of a LLTID than men assigned to the unskilled social class; the latter class were observed to survive without a LLTID to age 57 on average. At age 65, a gap of 5.3 years was present between these two classes. Professional men had statistically significantly higher DFLE than all other classes, while men in the unskilled manual social class had statistically significantly lower DFLE both at birth and at age 65.

Figure 1 **DFLE at birth in years with 95% confidence intervals by sex and RGSC: England, 2001–03**

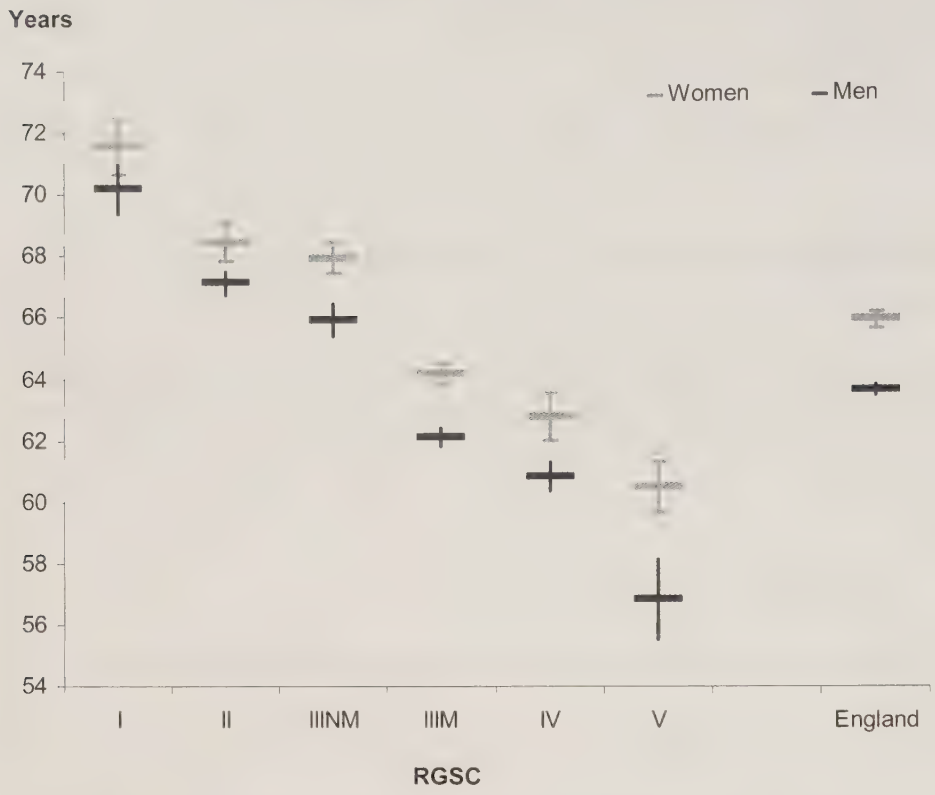
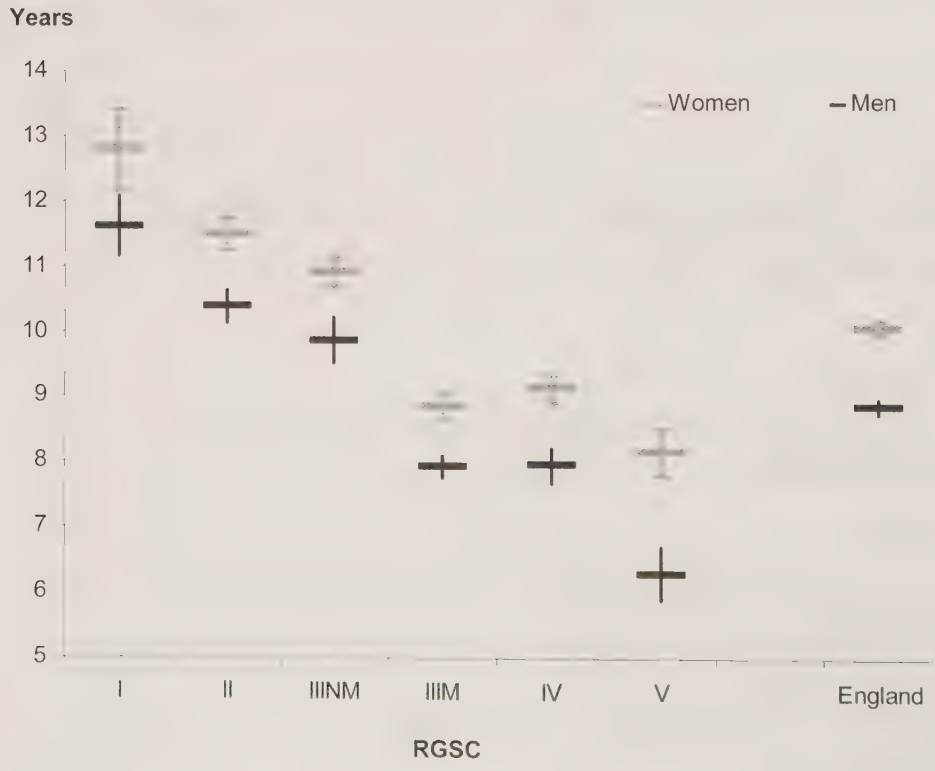


Figure 2 **DFLE at age 65 in years with 95% confidence intervals by sex and RGSC: England, 2001–03**



For women, the inequality in DFLE also exceeded the inequality in LE: professional women at birth could expect to live an additional 11.2 years free of LLTID compared with unskilled women. At age 65, the gap in DFLE between these classes was 4.7 years. While women experienced a higher DFLE within classes than men, men assigned to the non-manual social classes had a higher DFLE than women assigned to the manual social classes.

The gradients in DFLE between professionals and the unskilled are greater than those of LE both at birth and at age 65 (Table 1): at birth, approximately twice the magnitude; at age 65, the gradients are larger, but the difference between gradients in LE and DFLE are more prominent among men than among women.

Table 1 **Gradient in LE and DFLE between professionals and the unskilled: men and women in England, 2001–03**

Sex	LE at birth	DFLE at birth	LE at age 65	DFLE at age 65
Men	1.09	1.23	1.31	1.85
Women	1.09	1.18	1.29	1.57

A summary of the differences in DFLE between the extremes of the social class scale are reported in Table 2 below.

Table 2 **Summary of differences in DFLE between professionals and the unskilled at birth and at age 65: 2001–03, England**

		Disability-free Life Expectancy	
Difference at birth	Sex	Years of life spent free of disability	Proportion of life spent free of disability
I Professional - V Unskilled	Men	13.4	10.2%
	Women	11.1	6.9%
Difference at age 65			
	Sex	Years of life spent free of disability	Proportion of life spent free of disability
I Professional - V Unskilled	Men	5.3	18.3%
	Women	4.7	10.2%

Disability-free life expectancy by social class and LA 'Spearhead' status

The estimates of DFLE at birth and at age 65 for RGSC classes in the 'Spearhead group' and non-Spearhead LAs are reported in Table A1 in the Annex and illustrated in Figures 3 and 4 at birth. The social pattern of DFLE in both the 'Spearhead group' and Non-Spearhead LAs is largely consistent with the national pattern for England. However, the within class level of DFLE is lower in the 'Spearhead group'.

Among professional men, no statistically significant differences in DFLE at birth were found between the 'Spearhead group' and the non-Spearhead LAs. However, men assigned to the other social classes in the 'Spearhead group' were disadvantaged in terms of lower DFLE than their counterparts in the non-Spearhead LAs (Figure 3). Among the intervening social classes, a notably higher DFLE was observed among men assigned to the skilled manual social class in the non-Spearhead LAs compared with skilled non-manual men in the 'Spearhead group', and the former also had a comparable DFLE with men assigned to the managerial and technical social class in the 'Spearhead group' (Figure 3). A similar social pattern is also present among women (Figure 4).

Figure 3 **DFLE at birth in years by RGSC & Spearhead Area status: men in England, 2001–03**

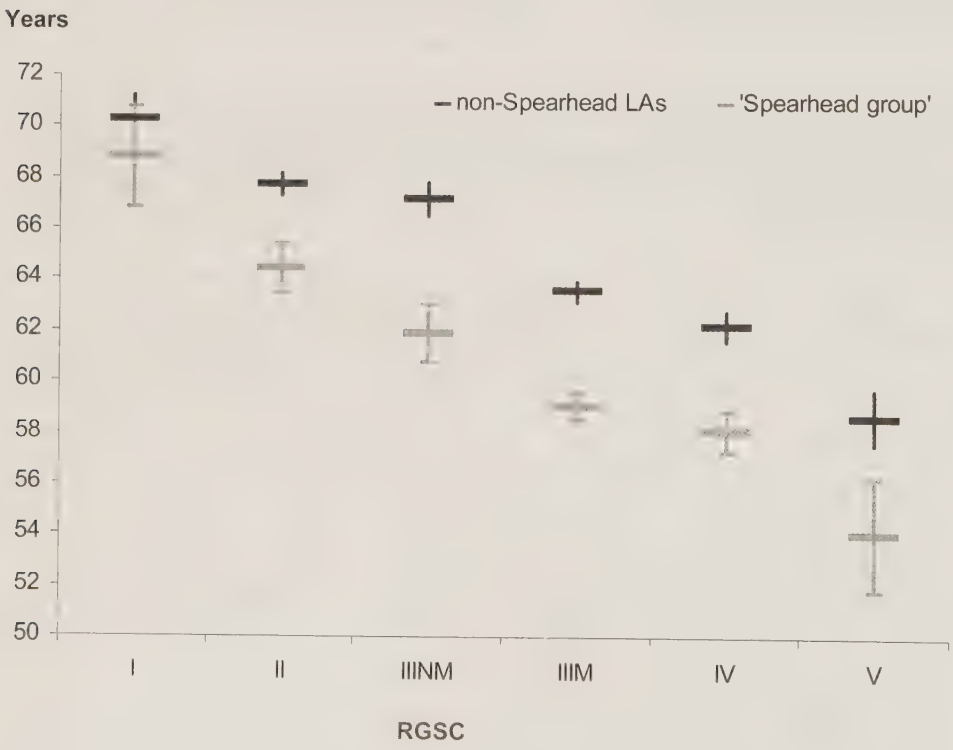
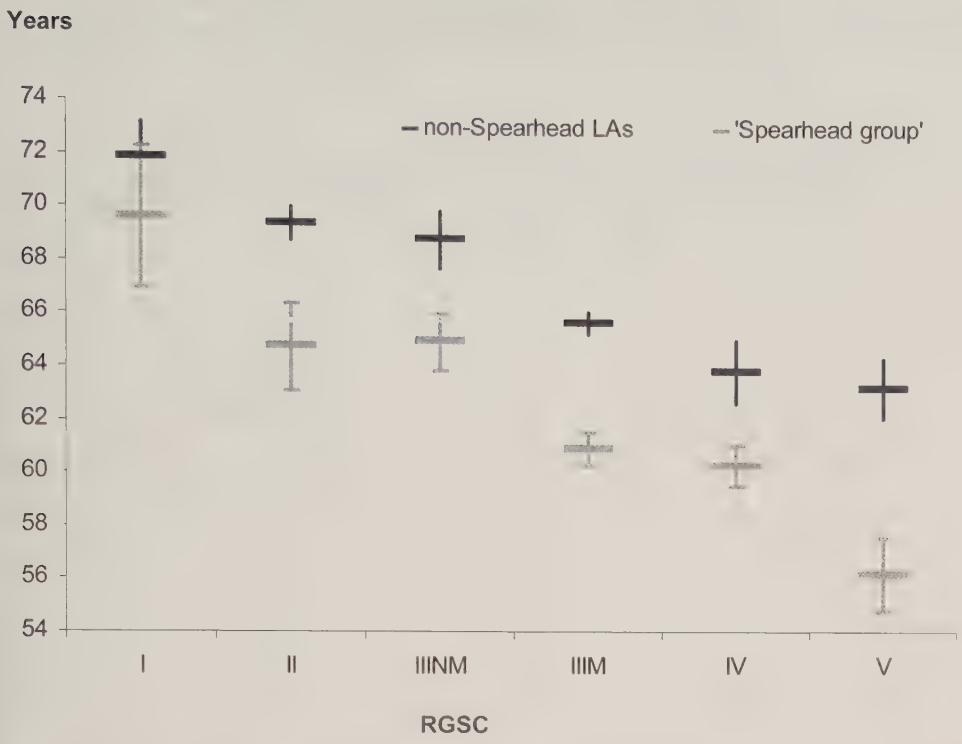


Figure 4 **DFLE at birth in years by RGSC & Spearhead Area status: women in England, 2001–03**



At age 65, men and women assigned to classes other than the professional class again had statistically significantly lower DFLE if resident in the 'Spearhead group' (Table A2 in the Annex).

The highest DFLE at birth is found among professional women living in the non-Spearhead LAs, where expectation of life without a LLTID was 71.9 years. The lowest DFLE of 54.0 years was found in men assigned to the unskilled social class living in the 'Spearhead group', a gap of 17.9 years in total. In general, the effect of residence in the 'Spearhead group' was smaller than the effect of social class, but also adds to the magnitude of inequality in DFLE observed.

In the 'Spearhead group', the gap in DFLE at birth between professional men and unskilled men was greater than in the non-Spearhead LAs (Table 3): 11.7 years in the non-Spearhead LAs and 14.8 years in the 'Spearhead group'. A slightly larger differential is observed in the inequality gap between area types in women.

At age 65, no difference in the gap in social inequality between area types was present among men; but among women the gap is slightly larger in the 'Spearhead group'. Table 4 compares the differences in DFLE for individuals living in the 'Spearhead group' and the non-Spearhead LAs within each social class, separately for men and women at birth and at age 65.

Table 3 Inequality in DFLE at birth and at age 65 by 'Spearhead' classification: men and women in English LAs, 2001–03

non-Spearhead LAs	MEN		WOMEN	
RGSC	DFLE at birth	DFLE at age 65	DFLE at birth	DFLE at age 65
Professionals	70.3	11.8	71.9	13.1
Unskilled	58.6	6.8	63.2	9.1
Inequality gap	*11.7*	*5.0*	*8.7*	*4.0*
'Spearhead group'	**MEN**		**WOMEN**	
RGSC	DFLE at birth	DFLE at age 65	DFLE at birth	DFLE at age 65
Professionals	68.8	10.5	69.6	11.1
Unskilled	54.0	5.5	56.2	6.7
Inequality gap	*14.8*	*5.0*	*13.4*	*4.4*
Difference in gap between areas	***3.1***	***0.0***	***4.7***	***0.4***

The second section of Table 4 reports the combined effect of social class and area type. For DFLE at birth in men and women there was a difference of 16 years between professionals living in the non-Spearhead LAs and the unskilled living in the 'Spearhead group'. The difference in the proportion of life spent free of a LLTID is 14 per cent for men and 10 per cent for women.

For DFLE at age 65, there is a difference of 6–8 years. The comparable difference in the proportion of life spent free of a LLTID was approximately 24 per cent for men and 16 per cent for women.

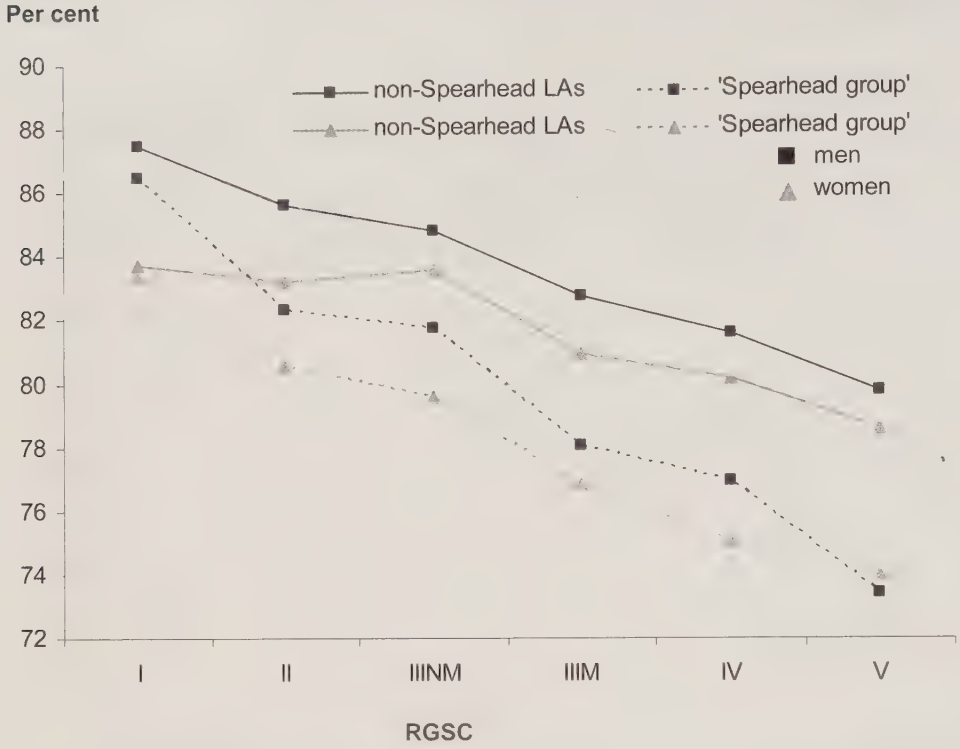
Relative differences in DFLE by social class and Spearhead status

The relative inequality in DFLE between social classes and between area types is also substantial, demonstrating those in disadvantaged circumstances not only experience shorter expectations of life, but also shorter proportions of life expectancy free from a LLTID (Figure 5).

Table 4 **Differences in DFLE at birth and at age 65 by RGSC between 'Spearhead' and non-Spearhead areas: men and women in English LAs, 2001–03**

Non-spearhead – 'Spearhead' areas	Disability-free life expectancy at Birth		Disability-free life expectancy at age 65	
RGSC	**Years of life spent free of LLTID**	**Proportion of life spent free of LLTID**	**Years of life spent free of LLTID**	**Proportion of life spent free of LLTID**
Men				
I	1.5	1.0%	1.3	3.3%
II	3.3	3.3%	1.2	7.2%
IIINM	5.3	3.0%	1.9	6.6%
IIIM	4.5	4.7%	2.0	10.6%
IV	4.1	4.6%	1.3	7.7%
V	4.5	6.3%	1.3	9.0%
Women				
I	2.3	0.4%	2.0	1.6%
II	4.6	2.7%	1.9	7.7%
IIINM	3.9	4.0%	1.8	7.5%
IIIM	4.8	4.1%	1.5	5.8%
IV	3.5	5.1%	1.6	7.9%
V	7.1	4.6%	2.4	8.8%
Inequalities by sex, RGSC and 'Spearhead' classification				
Professional men non-Sp - unskilled men 'Spearhead'	16.2	14.1%	6.3	24.3%
Professional women non-Sp - unskilled women 'Spearhead'	15.7	9.7%	6.4	15.9%
Professional women non-Sp - unskilled men 'Spearhead'	17.8	10.3%	7.6	16.7%

Figure 5 Per cent of life expectancy at birth spent free of LLTID by RGSC and 'Spearhead' classification: men and women in English LAs, 2001–03

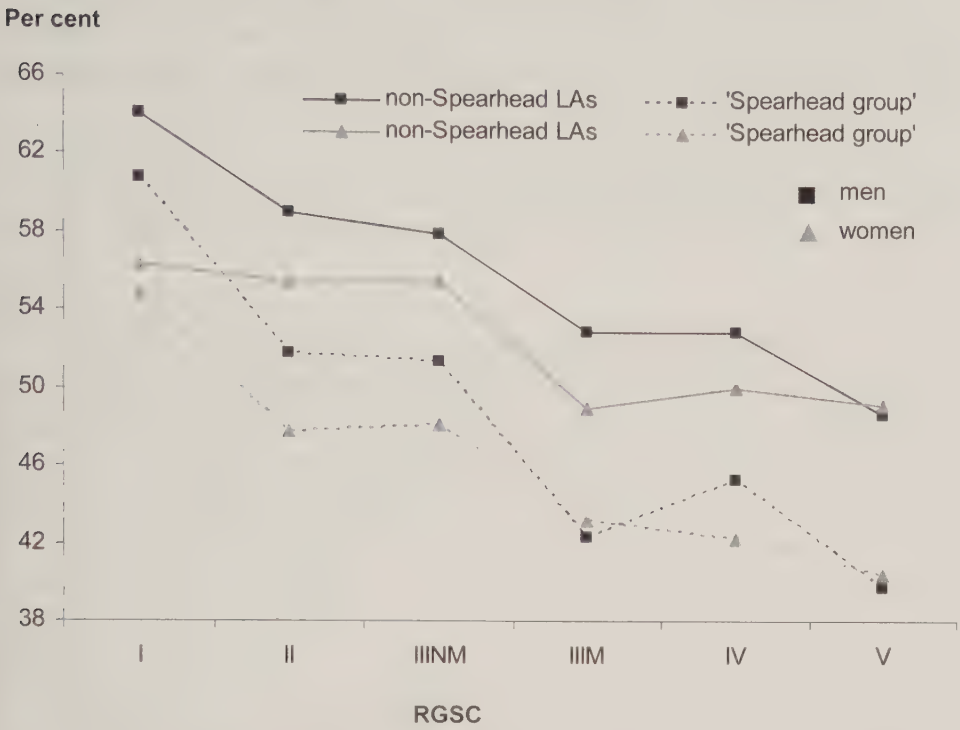


The results predominantly indicate that although men live shorter lives than women, they spend a higher proportion of their LE free of a LLTID within area type. However, this pattern is reversed in the case of the unskilled class in the 'Spearhead group'. The higher relative DFLE in men is particularly notable among professionals. Both sexes conform to a pattern of falling proportions of LE spent free of a LLTID with increasing socio-economic disadvantage, although the differences between social class II and social class IIINM are the smallest.

The scale of inequality in relative DFLE between professionals and the unskilled is almost twice as high in the 'Spearhead group' compared with the non-Spearhead LAs: a difference of 13.1 per cent between professional men and unskilled men, and a difference of 9.4 per cent between professional women and unskilled women. The larger relative difference observed in the 'Spearhead group' arises as a result of the much lower proportion of life spent free of a LLTID among unskilled men and women in these areas compared with their counterparts in the non-Spearhead LAs. Professionals are observed to have similar durations of life free of a LLTID in each area type.

The deterioration with increasing socio-economic disadvantage in the proportion of life expectancy at birth spent disability-free also applies at age 65 (Figure 6).

Figure 6 **Per cent of life expectancy at age 65 spent free of LLTID by RGSC and 'Spearhead' classification: men and women in English LAs, 2001–03**



At age 65, unskilled women and skilled manual women in the 'Spearhead group' had higher proportions of their life expectancy free of a LLTID compared with men; this is reversed for all other social classes once adjusted for area type. Area type had a modest effect on the relative DFLE of professional men and women, but for all other classes, living in the 'Spearhead group' confers a notably lower proportion of LE spent free of a LLTID. Among men, the largest difference between the 'Spearhead group' and the non-Spearhead LAs occurred among the skilled manual class, who were disadvantaged in relative terms compared with their counterparts in non-Spearhead LAs.

The inequality between professionals and the unskilled in relative DFLE was higher at age 65 in both types of area than at birth; the difference in the gap was greater in the 'Spearhead group'. For men a difference of 21.0 per cent was found between professionals and the unskilled; for women the equivalent difference was 14.4 per cent.

Discussion

In this analysis DFLE based on functional health status, as recorded by the 2001 Census question on limiting long-term illness and disability has been compared across RGSC social classes and a grouping of local authorities based on the Department of Health's Spearhead classification.

Differences in disability-free life expectancy by social class

The differences observed in DFLE at birth and at age 65 between people assigned to the professional and unskilled social classes are statistically significant and substantial, demonstrating a clear social inequality in the amount of life, the functional capacity and performance during those

years lived, the absolute number of years free of a LLTID, and thus the relative proportion of life spent free of limiting illness or disability.

At age 65 statistically significant differences between professionals and the unskilled persist, but are of a lower order of magnitude in absolute terms; however, in relative terms the differences are more substantial. This indicates that the effect of socio-economic position on DFLE endures after retirement.

The results estimated for DFLE are similar to those for HLE, and therefore the broad four-group classificatory pattern by socio-economic position for men and women at birth and at age 65 reported in the article on HLE also applies for DFLE.*

A higher DFLE at birth among women is predominantly present at the England level within social classes, although professional men and women have comparable DFLE. This differs from the sex comparison in HLE at birth where women had statistically significantly higher HLE in all social classes, including professionals. However, the generally higher DFLE of women reported in national estimates disguises the effect of socio-economic position, in that men assigned to the non-manual social classes have higher DFLE than women assigned to the manual classes, emphasising the importance of socio-economic position on longevity free of limiting illness or disability.

The level of social disparity is more marked among men than among women in measures of DFLE at birth. This mainly arises from the relatively lower DFLE among unskilled men compared with women, while the DFLEs of professionals are comparable between the sexes. A larger gradient in men is also present at age 65. The importance of exposure to occupational hazards and their duration varying by sex is of greater significance in explaining differences in estimates of DFLE which attempt to measure functional health status; longer exposures to occupational hazards among the manual classes may represent a plausible mechanism for the steeper gradients observed.

Disability-free life expectancy by social class and LA 'Spearhead' status

The influence of area on class specific DFLE at birth was uniform for men and women. Professionals had comparable DFLEs, while for the other social classes DFLE is statistically significantly lower in the 'Spearhead group'. The resilience of the Professional class to unfavourable area circumstances is consistent with a threshold of social advantage effect found in previous analyses, which, once achieved, in terms of material affluence and social status, dominates or compensates for the hazards associated with the area of residence.

Living in the 'Spearhead group' has the effect of accentuating an already substantial inequality between professional men and women and unskilled men and women at the all England level. Men and women assigned to the unskilled social class living in the 'Spearhead group' are the most disadvantaged population sub-groups in terms of longevity and in the proportion of life expectancy spent with LLTID. This suggests the effect of socio-economic position is modified by the social and material fabric of the area of residence, particularly among men. These interactions between area,

* Readers are referred to the article on HLE in this edition of Health Statistics Quarterly for exposition of four group classificatory pattern.

gender and socio-economic position need further exploration, particularly taking account of the influence of social mobility and perhaps the social composition of households.

DFLEs at birth were statistically significantly higher for women than men in the non-Spearhead LAs if they were assigned to the managerial and technical, skilled manual or unskilled social classes; however, in the 'Spearhead group' sex differences were present among the skilled non-manual, skilled manual and partly skilled social classes. Consequently, the predominant within class statistically significant higher DFLEs experienced by women at the England level are affected by area type. Specifically, the presence of sex differences in DFLE at birth are conditioned both by socio-economic position and area type.

The additive effect of sex, social class and area lead to substantial absolute differences in DFLE. A professional woman living in the non-Spearhead LAs can expect to live 18 years longer free of a limiting long-term illness or disability than a man assigned to the unskilled social class living in the 'Spearhead group'. This represents a profound inequality, and a clear difference in both the service needs posed by these sub-groups of the population, and their fitness for work at both working age and post the state pension age.

The sex divide in the proportion of life spent free from limiting illness or disability is largely inverted to the pattern in absolute differences. Men live shorter lives compared to women, but spend a higher proportion free of limiting illness or disability. Consequently, the greater longevity of women is accompanied by longer durations with a limiting long-term illness or disability, suggesting the health and social care needs of women will exceed that of men in each social class and area.

Conclusion

This analysis reports DFLE by socio-economic position and area type, and establishes clear differences in longevity free of limiting illness or disability between the social classes in a predominant linear pattern with DFLE increasing with increasing social advantage in each type of area investigated. However within class DFLE at birth for men and women is found to be lower in the 'Spearhead group', and statistically significantly lower among all classes other than professionals.

These results confirm that the assumptions made with regard to sex differences in DFLE need to be set in the context of socio-economic position, and assumptions made regarding sex and social differences need to set in the context of geography.

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Annex

Table A1 Life Expectancy and DFLE at birth and at age 65 by RGSC: England, 2001–03

	Social Class	Life expectancy	Disability-free life expectancy			
At Birth		**Years**	**Years**	**Lower 95 % confidence interval**	**Upper 95 % confidence interval**	**HLE as a proportion of LE (%)**
Men	I	80.2	70.2	69.4	71.0	*87.5*
	II	78.9	67.1	66.7	67.5	*85.0*
	IIINM	78.4	65.9	65.4	66.5	*84.1*
	IIIM	76.4	62.1	61.8	62.4	*81.3*
	IV	75.9	60.8	60.3	61.3	*80.0*
	V	73.5	56.8	55.5	58.1	*77.3*
England		77.1	63.6	63.4	63.8	*82.4*
UK 2001–03*		75.9	60.9	60.6	61.2	*80.2*
Women	I	85.5	71.6	70.7	72.5	*83.8*
	II	82.8	68.4	67.8	69.1	*82.7*
	IIINM	82.2	67.9	67.4	68.4	*82.6*
	IIIM	80.6	64.2	63.8	64.5	*79.6*
	IV	79.9	62.7	62.0	63.5	*78.5*
	V	78.7	60.4	59.6	61.3	*76.8*
England		81.3	65.8	65.6	66.1	*80.9*
UK 2001–03*		80.5	63.0	62.7	63.3	*78.3*
At age 65						
Men	I	18.3	11.6	11.1	12.1	*63.6*
	II	17.9	10.4	10.1	10.6	*57.8*
	IIINM	17.4	9.9	9.5	10.2	*56.6*
	IIIM	16.0	7.9	7.8	8.1	*49.7*
	IV	15.7	7.9	7.7	8.2	*50.7*
	V	13.9	6.3	5.9	6.7	*45.3*
England		16.5	8.8	8.7	8.9	*53.4*
UK 2001–03*		16.1	9.0	8.8	9.3	*55.9*
Women	I	22.7	12.8	12.2	13.4	*56.4*

II	21.3	11.5	11.2	11.7	*54.1*
IIINM	20.2	10.9	10.7	11.1	*53.9*
IIIM	18.7	8.8	8.6	9.1	*47.2*
IV	19.1	9.1	8.9	9.3	*47.7*
V	17.6	8.1	7.8	8.5	*46.2*
England	19.7	10.1	9.9	10.2	*50.9*
UK 2001–03*	19.1	10.3	10.1	10.5	*53.9*

Notes: UK 2001–03* Based on ONS standard health expectancies calculations published in HSQ 29, 59–62
www.statistics.gov.uk/downloads/theme_health/HSQ29.pdf

Table A2

Life Expectancy and DFLE at birth and at age 65, by RGSC in the 'Spearhead group' and non-Spearhead LAs: men and women in English LAs, 2001–03

	Life Expectancy		Healthy life expectancy							
At Birth		Years		Years	Lower 95 % confidence interval		Upper 95 % confidence interval		HLE as per cent of LE	HLE as per cent of LE
	non-Sp	SG	non-Sp	SG	non-Sp	SG	non-Sp	SG	non-Sp	SG
Men										
I	80.3	79.5	70.3	68.8	69.3	66.8	71.2	70.8	87.5	86.5
II	79.1	78.2	67.7	64.4	67.3	63.4	68.2	65.3	85.6	82.3
IIINM	79.2	75.7	67.1	61.9	66.5	60.7	67.8	63.0	84.8	81.7
IIIM	76.7	75.6	63.5	59.0	63.1	58.5	63.9	59.6	82.8	78.0
IV	76.2	75.4	62.1	58.0	61.5	57.2	62.7	58.8	81.5	76.9
V	73.5	73.6	58.6	54.0	57.5	51.8	59.7	56.2	79.7	73.4
All classes	77.6	75.9	65.0	59.8	64.7	59.4	65.2	60.1	83.7	78.8
England	77.1		63.5		63.4		63.7		82.4	
UK 2001–03*	75.9		60.9		60.6		61.2		80.2	
Women										
I	85.8	83.5	71.9	69.6	70.6	66.9	73.2	72.2	83.7	83.4
II	83.4	80.4	69.4	64.7	68.8	63.1	70.0	66.4	83.2	80.5
IIINM	82.4	81.7	68.8	65.0	67.7	63.9	69.9	66.0	83.5	79.5
IIIM	81.2	79.3	65.7	60.9	65.2	60.3	66.1	61.5	80.9	76.8
IV	79.6	80.4	63.8	60.3	62.6	59.5	65.0	61.1	80.2	75.0
V	80.5	75.9	63.2	56.2	62.1	54.8	64.4	57.6	78.6	74.0
All classes	81.9	79.8	67.3	62.0	67.0	61.5	67.6	62.5	82.1	77.7
England	81.3		65.8		65.6		66.1		80.9	
UK 2001–03*	80.5		63.0		62.7		63.3		78.3	
At age 65										
Men										
I	18.4	17.3	11.8	10.5	11.3	9.5	12.3	11.6	64.1	60.8
II	17.9	18.1	10.6	9.4	10.3	8.8	10.8	10.0	59.0	51.8
IIINM	17.7	16.2	10.3	8.3	9.9	7.7	10.7	9.0	58.0	51.4
IIIM	16.2	15.5	8.6	6.5	8.4	6.3	8.8	6.8	53.0	42.4
IV	15.8	15.6	8.4	7.1	8.0	6.6	8.7	7.5	53.0	45.3
V	14.0	13.9	6.8	5.5	6.3	4.9	7.4	6.1	48.7	39.7

All classes	16.8	15.9	9.4	7.3	9.3	7.1	9.6	7.5	56.1	45.9
England	16.5		8.8		8.7		8.9		53.4	
UK 2001–03*	16.1		9.1		8.8		9.3		56.5	
Women										
I	23.2	20.3	13.1	11.1	12.4	9.2	13.7	13.0	56.4	54.8
II	21.4	20.9	11.9	10.0	11.6	9.4	12.1	10.5	55.4	47.8
IIINM	20.4	19.8	11.3	9.5	11.1	9.1	11.6	10.0	55.6	48.1
IIIM	19.0	18.1	9.3	7.8	9.1	7.5	9.6	8.2	49.0	43.2
IV	19.2	19.0	9.6	8.0	9.4	7.6	9.9	8.4	50.1	42.2
V	18.5	16.5	9.1	6.7	8.6	6.1	9.6	7.2	49.2	40.4
All classes	20.1	18.8	10.6	8.5	10.5	8.3	10.8	8.7	53.0	45.0
England	19.7		10.1		9.9		10.2		50.9	
UK 2001–03*	19.1		10.3		10.1		10.5		53.9	

non-Sp = non-Spearhead LAs; SG = 'Spearhead group'

UK 2001–03* Based on ONS standard Health Expectancies calculations published in HSQ 29, 59–62
www.statistics.gov.uk/downloads/theme_health/HSQ29.pdf

Update to the methodology used to calculate health expectancies for the UK and constituent countries

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Abstract

Background

Changes to the design of the General Household Survey (GHS) risk a discontinuity in the ONS Health Expectancy (HE) series. This report compares methodological approaches to ensure consistency of this important National Statistic and reports improvements to the methodology surrounding standard error (SE) estimation.

Methods

A comparison of the use of cross–sectional and longitudinal GHS data in estimating health state prevalence and HE in the UK, GB and constituent countries for the period 2005–07. Incorporation of the GHS sampling design effect into the calculation of standard errors surrounding estimates of HE backdated to 2000–02.

Results

The prevalence of favourable health states was significantly higher in the longitudinal compared to the cross–sectional sample of the GHS. Compared to established trends, the inclusion of longitudinal data in estimates of healthy life expectancy (HLE) led to implausible increases in this metric. However, the prevalence of limiting long–standing illness and estimates of disability–free life expectancy (DFLE) using longitudinal data were broadly comparable and in line with recent trends.

Inclusion of the design effect had only a minor impact on the estimation of current and historic HE standard errors. On three occasions, increases in HLE over time were no longer significant using this enhanced method of SE estimation and in a single instance differences in DFLE between countries were no longer significant.

Conclusions

Attrition in the GHS longitudinal dataset introduces significant bias into estimates of health state prevalence and a discontinuity in the established trend of HLE. Utilising the cross-sectional GHS sample alone in 2005–07 represents the most reliable approach to maintain the consistency of this important series. Incorporation of the design effect enhances the precision of estimates of HE.

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Introduction

In 2005 the design of the General Household Survey (GHS) changed to a rotating panel, to give researchers access to data capable of measuring changes over time in respondents' circumstances, including their states of health. The advantages for research of longitudinal data have been well documented;[1] however, a weakness is the possibility of loss to follow-up among sample members. This can introduce bias into analyses if the cause of the attrition is related to the subject under study, such as well-being or functional health status.

The introduction of longitudinal data capture into the GHS has implications for the continuity of the Health Expectancy (HE) time series which has been published by the Office for National Statistics (ONS) since 1981. Disproportionate attrition of a particular group of contributors, for example those in the poorest health, will preclude the use of repeat measurement data (panels two to four) in maintaining the time series. However, restricting the analysis to the annual refreshed sample (panel one only) may result in insufficient numbers to detect statistically significant differences between constituent countries of the UK and over time.

This report has three principal aims:

- Firstly, to compare the prevalence of health states in the longitudinal and cross-sectional elements of the GHS, in order to assess the extent of bias resulting from attrition
- Secondly, to compare HEs derived from survey data that include and exclude the longitudinal elements of the GHS, in order to inform the likely effect of using the longitudinal data in this time series
- Thirdly, to document the approach to calculation of the standard errors (SE) of HE estimates incorporating the survey design effect (deff). This approach is applied to the historical time series from 2000–02, to ensure that the variance of health expectancy estimates and their precision take account of the complex sampling design of the GHS

Background

ONS estimates of HE for the UK and its constituent countries are partly constructed using the self-reported health of respondents to the GHS. In 2005, this survey changed from a purely cross-sectional design to a rotating-panel longitudinal design, becoming the General Household Survey Longitudinal, GHS(L). In the same year, the survey sample was arbitrarily divided into four distinct panels, each being representative of the wider private household population of Great Britain (GB).

Three of the panels interviewed in 2005 were interviewed again in 2006, representing the first round of longitudinal or repeat-survey data. A single panel (wave 1 in 2006), was recruited afresh, providing cross-sectional data in that year. In 2007, three panels from the previous year were again carried forward for interview, representing the second (wave 2) or third (waves 3 and 4) instalments of longitudinal data. Again in 2007, a single panel (wave 1 in 2007) was recruited to interview for the first time, providing cross-sectional data for that year.

Although not included in the analysis presented here, 2008 will be the first year in which a panel in the GHS(L) will have been interviewed on four successive occasions. Another novelty in 2008 is the presence of panels in their first, second, third and final year of interview (Box 1). Note that in 2008 the GHS(L) was a constituent part of the Integrated Household Survey (IHS) becoming the General Lifestyle Module (GLF).

In each year from 2006, the new survey entrants (wave 1) represented approximately one-third of the total survey sample. This was to over-compensate for potential attrition in the panel as it underwent re-interview in successive years. The new (wave 1) panel in each year represents cross-sectional data and as such does not suffer from potential bias that may arise through attrition. This change in the design of the data source used by ONS to calculate HE, places at risk the continuity of this time series, established in 1981 for GB and in 2001 for the UK as a whole.

The standard approach to calculating HEs involves pooling three consecutive years of survey data in order to increase sample sizes and achieve sufficient precision to identify differences between countries and changes over time. With the introduction of longitudinal data elements, simply repeating the pooling of three years survey data would involve using repeat observations. The use of repeat observations has certain implications including bias that may arise from panel conditioning and changes in the population that occur between the time of selection of the panel and interview.[1]

The key aspect of concern here is the possibility of non-random attrition: that is, disproportionate loss from the sample of particular sub-groups of the sample, such as those in the poorest health. In the case of HEs, this will exaggerate the length and proportion of life that someone might expect to live in 'Good' or 'Fairly Good' health or without a limiting chronic illness. Sample weights have been developed for the GHS(L) to correct for non-random attrition, but there is no guarantee that these weights fully rectify the effect of attrition on the outcome under study.

Another consequence of using repeat observations is a reduction in the precision of calculated estimates, which arises as a result of inflation in the SEs caused by the correlation in within-subject responses over time.

An alternative to pooling the full datasets is to extract only the new entrant panels for pooling over time. This approach was used for HE estimates reported in 2004–2006. As the observations are cross-sectional, the issues arising with longitudinal responses are eliminated. However, the available sample for analysis is substantially smaller than was the case prior to 2006. This has two potential consequences: firstly, there may be no observations in some of the cells required for the HE tables; secondly, as the SE is a function of the sample size, the level of precision in HE estimates will reduce.

This article reports preliminary findings arising from an exploration of including or excluding the longitudinal component of the GHS(L) in calculating HEs in the period 2005–2007. The primary focus is the effect on consistency. Further work is being carried out on the effect on precision of the HE estimates, which will be reported at a later date. In addition, this article also reports improvements made to the standard method of sampling error estimation, backdated to the period 2000–2002.

Methodology

ONS estimates of HE are calculated using the Sullivan method, which requires the combination of survey, mortality and population data to estimate periods of life spent in 'Good' or 'Fairly Good' health; healthy life expectancy (HLE), or without a limiting chronic illness or disability; disability-free life expectancy (DFLE).[2]

Health state prevalence

A primary component of HE estimation is the population prevalence of health states by sex and five-year age band. For GB and constituent countries, these are calculated from responses to general health and limiting long-standing illness questions in the GHS(L). For the UK, GHS(L) data is combined with responses to identical questions in the Continuous Household Survey (CHS) of Northern Ireland (NI).

GHS(L) survey data is weighted to compensate for non-response and calibrated to the sampling distribution of known population totals in terms of age group, sex and region. This weighting allows the survey data to reflect the population characteristics of GB and lower level geographies. In 2006, weighting was adjusted to include non-response due to attrition, that is, non-participation of respondents to subsequent waves of the survey. For the CHS a simple, population based, weighting is applied to survey data to reflect the mid-year population estimates of NI by age and sex.

Weighted survey data is used to calculate population estimates of the prevalence of 'Good' or 'Fairly Good' and 'Not Good' health states and the presence or absence of a limiting long-standing illness which feed into the construction of the HE metrics. This is combined with prevalence estimates of residents of medical and care communal establishments, based on the prevalence rates recorded at the Census 2001 and adjusted to match current mid-year population estimates. It is necessary to use the 2001 Census data to estimate the prevalence of health states in the communal establishment population since the scope of GHS(L) and CHS data is restricted to the private household population.

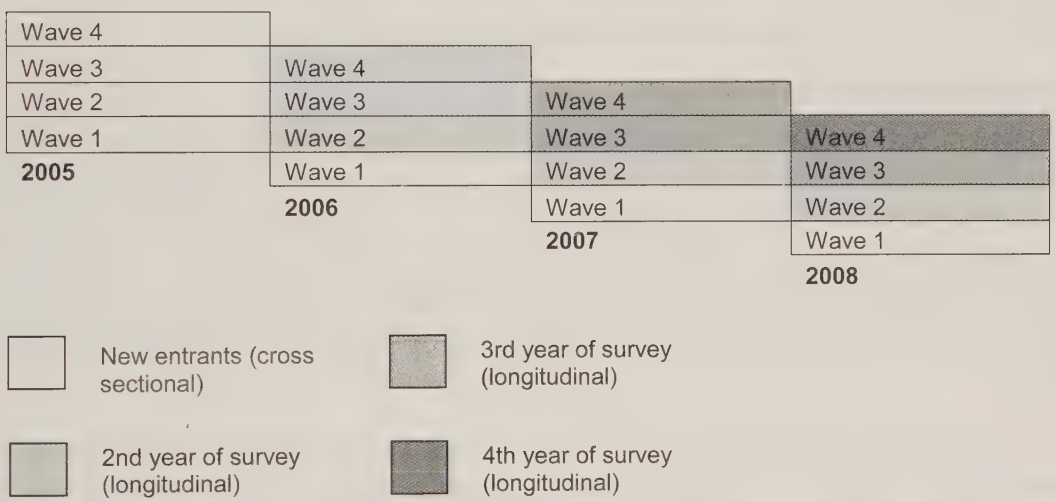
Health expectancies

The complete methodology of ONS HE estimation has previously been published and will not be described in detail here.[3] Briefly, three-year aggregate survey and communal establishment health prevalence data is multiplied by the total person years lived at a given age interval, calculated from three-year aggregated mid-year population estimates and period life tables, to give the total number of person years lived in that age-interval in 'Good' or 'Fairly Good' health or without a limiting long-standing illness. This value is then divided by the number of people surviving to that age to give an estimate of HLE or DFLE respectively.

Design of the GHS(L)

As described earlier, households surveyed by the GHS in 2005 were arbitrarily divided into one of four 'waves' to indicate their position in the rotating panel of subsequent GHS(L) surveys. In each year from 2006, wave 1 respondents represent the new and therefore cross-sectional element of the survey, while waves 2 to 4 represent repeat entrants (Box 1).

Box 1 Diagrammatic representation of waves through successive years of the GHS(L) (General Lifestyle Module from 2008)



Comparison of longitudinal and cross-sectional data

The purpose of the first investigation was to establish the extent to which the attrition weighting was compensating for differential attrition. The assumption was that in any year after 2005 the health state prevalence estimates from the new entrant (wave 1) panel should not be significantly different from the corresponding estimates from the continuing (waves 2 to 4) panels. Appropriate weights were applied to estimates from each panel. This is because each panel was selected as a representative sample of the population. The ongoing panels exclude exits from the cross-sectional

population caused by deaths and ineligibility; but do not account fully for entrants to the cross-sectional population.

Any differences that do occur in estimates between the new and ongoing panels are therefore attributed to the longitudinal process, that is, attrition, population change or panel conditioning. It has been assumed that imperfect adjustment for attrition will be the major cause of any such differences, although it is not possible to verify this with certainty.

Health state prevalence was compared between wave 1 (cross-sectional) and waves 2 to 4 (longitudinal) in 2005, 2006 and 2007. Both weighted and unweighted data were compared in each period, since the addition of a model to account for population based attrition in the weighting paradigm of the GHS(L) might account for bias caused by the loss of survey respondents in the longitudinal data.

HLE and DFLE by country, sex and age band based upon complete GHS(L) datasets over the period 2005–2007, that is, incorporating both the cross-sectional and longitudinal elements, were compared with the cross-sectional data alone over this period.

At the time of writing, the standard errors of the complete dataset had yet to be calculated. These require the estimation of the over-time correlation between longitudinal responses, for which the methodology is being developed. This will then enable statistical significance tests to be undertaken on differences between the complete and cross-sectional data.

Calculation of confidence intervals

ONS estimates of HLE and DFLE are reported with 95 per cent confidence intervals (CIs) to indicate their precision. The 95 per cent CI is additionally used to detect significant differences between countries and over time. Historically, the SE and by extension, the CIs, have been calculated for both the GHS(L) and the CHS without taking into account their survey design. This approach is appropriate for surveys with a simple random sample design, such as the CHS. However, for surveys with complex sample designs, such as the GHS(L)'s cluster design, a more accurate estimation of SEs is necessary, incorporating the deff of sample selection.

The GHS(L) has a multi-stage sample design, involving clustering and stratification, each of which has different effects on SEs. For example, if health status among people living within the same primary sampling unit (PSU) is more similar than it is among the population in general, the standard errors of HE estimates can increase. In contrast, stratification results in reduced SEs and therefore better precision of point estimates.

These deffs should be accounted for when calculating the SEs of HE estimates since the size of the error depends upon the spread of health events within and between PSUs. ONS HE time-series backdated to 2000–2002 has been adjusted in this paper to reflect the deff of the GHS over these years, and these data are compared with original estimates of 95 per cent CIs. Estimates for NI are unaffected by this issue since the CHS has a simple random sample design. However for the UK, SEs from GB incorporating the deff of the GHS has been combined with those of NI to calculate UK level SEs and 95 per cent CIs.

Results

Comparison of the prevalence of health states between cross-sectional and longitudinal data

The analysis reported below demonstrates that the prevalence estimates of health states for those people continuing in the survey beyond the first (wave 1) interview are different from those entering the survey for the first time. In the unweighted data, 'Good' and 'Fairly Good' health was significantly more prevalent in longitudinal (waves 2 to 4) compared with cross-sectional (wave 1) data in 2006 and 2007. There was no statistically significant difference between the waves in 2005, when all respondents were cross-sectional. In addition, there were no significant differences in the prevalence of limiting long-standing illness between longitudinal and cross-sectional panels for males or females in 2006 and 2007 or between panels in 2005 (see Table 1).

In 2006, 91.2 per cent of males in the longitudinal panels reported 'Good' or 'Fairly Good' health compared with 89.3 per cent in the cross-sectional panel. Similarly in 2007, the proportion of males reporting favourable health states in the longitudinal panels was significantly greater than in the cross-sectional panel (90.9 per cent and 89.4 per cent respectively). For females in 2006, 90.2 per cent in the longitudinal panels reported 'Good' or 'Fairly Good' health compared with 86.9 per cent in the cross-sectional panel. In 2007 these figures were 89.6 per cent and 87.8 per cent respectively.

When weighted to reflect non-response and attrition, the prevalence of 'Good' and 'Fairly Good' health was significantly higher in the longitudinal compared with the cross-sectional panels in 2006 but not in 2007. For males in 2006, 91.5 per cent reported favourable health states in the longitudinal panels compared with 89.4 per cent in the cross-sectional panel. In 2007 these figures were 91.1 per cent and 89.7 per cent respectively. For females in 2006, 90.0 per cent reported 'Good' or 'Fairly Good' health in the longitudinal panels compared with 86.7 per cent in the cross-sectional panel. In 2007 these figures were 89.4 per cent and 87.8 per cent respectively. There were no differences in the weighted data for health state prevalence between panels in 2005 and in the prevalence of limiting long-standing illness between longitudinal and cross-sectional panels in 2005, 2006 and 2007.

Table 1 **The prevalence of 'Good'/'Fairly Good' health and limiting long-standing illness for males and females by GHS(L) wave in 2005, 2006 and 2007**

Great Britain — Per cent

		Males				Females			
		'Good'/'Fairly Good' health		Limiting long-standing illness		'Good'/'Fairly Good' health		Limiting long-standing illness	
		Cross-sectional (wave 1)	Longitudinal (waves 2–4)	Cross-sectional (wave 1)	Longitudinal (waves 2–4)	Cross-sectional (wave 1)	Longitudinal (waves 2–4)	Cross-sectional (wave 1)	Longitudinal (waves 2–4)
Unweighted data	2005	89.0	89.2	18.2	18.1	87.1	87.8	19.6	19.5
	2006	89.3[1]	91.2	17.3	17.8	86.9[1]	90.2	21.5	20.0
	2007	89.4[1]	90.9	18.3	18.1	87.8[1]	89.6	18.7	19.5
Weighted data	2005	89.0	89.2	18.1	18.1	86.9	87.4	19.8	19.9
	2006	89.4[1]	91.5	17.2	16.7	86.7[1]	90.0	21.3	20.0
	2007	89.7	91.1	17.8	17.4	87.8	89.4	18.6	19.4

[1] Significant difference between waves (p>0.05)

Health expectancies

Survey data were combined to calculate HEs for the period 2005–2007. Comparisons were made between complete (waves 1 to 4 in each year) and cross–sectional datasets (comprising waves 1 to 4 in 2005 and wave 1 only in 2006 and 2007).

As with the comparison between longitudinal and cross-sectional panels, 'Good' and 'Fairly Good' health was more prevalent for males and females in the complete dataset compared with the cross-sectional data alone. For males the prevalence of favourable health states was 90.0 per cent in the complete dataset compared with 89.2 per cent in the cross-sectional data, for females the equivalent figures were 88.5 per cent and 87.5 per cent respectively. There were mostly no differences in the prevalence of limiting long-standing illness between complete and cross-sectional datasets (Table 2).

Table 2 The prevalence of 'Good'/'Fairly Good' health and limiting long-standing illness by sex in complete and cross-sectional specific GHS(L) datasets 2005–2007

Great Britain

Per cent

	Complete (waves 1–4)		Cross-sectional (wave 1)	
	Good'/'Fairly Good' health	Limiting long-standing illness	Good'/'Fairly Good' health	Limiting long-standing illness
Males	90.0	18.0	89.2	18.0
Sample size (n)	30,531		17,385	
Females	88.5	19.8	87.5	19.7
Sample size (n)	34,161		19,475	

Complete and cross–sectional datasets from the GHS(L) were combined with data from the CHS, mid-year population estimates, and mortality data to calculate health expectancies for the UK, GB and constituent countries in 2005–2007.

Although it is not possible here to assign statistical significance to differences between HE estimates derived from complete and cross-sectional data, clear patterns in the data emerged.

In general, HLEs for males and females at birth and at age 65 were higher when derived using the complete data. The greatest disparity was in males at birth in the UK, England and Scotland where HLE derived from complete data was 0.8 years greater than that derived from the cross-sectional specific data. For females the greatest disparity occurred in Wales at birth, where the complete data produced an estimate 1.5 years higher than that estimated using cross-sectional data (Table 3).

There was a single instance in which the HLE estimates were identical; males in Scotland at age 65. There was also one instance in which the estimate derived from the complete data was lower than that produced by the cross-sectional data; males in Wales at age 65 had an estimated HLE of 12.3 years using to the complete data and 12.7 years using the cross-sectional specific data.

There was no clear trend of increased or decreased estimates of DFLE for males and females at birth or at age 65 whether using complete or cross-sectional specific data. With a few exceptions, estimates derived from the complete data tended to be slightly higher at birth but slightly lower at age 65 compared with those produced using the cross-sectional specific data.

Table 3 HLE and DFLE by complete and cross-sectional specific survey data at birth and at age 65 by sex: UK, GB and constituent countries, 2005–2007

United Kingdom — Years

		HLE		DFLE	
		Complete	Cross-sectional	Complete	Cross-sectional
Males at birth	UK	69.2	68.4	62.6	62.5
	GB	69.2	68.5	62.6	62.6
	England	69.5	68.7	62.8	62.9
	Wales	67.7	67.1	60.3	59.3
	Scotland	68.1	67.3	62.1	61.7
Females at birth	UK	71.5	70.4	63.8	64.1
	GB	71.5	70.5	63.8	63.8
	England	71.6	70.7	63.9	64.0
	Wales	70.6	69.1	63.4	63.1
	Scotland	71.0	69.9	63.3	63.2
Males at age 65	UK	13.1	12.9	9.8	10.0
	GB	13.1	12.8	9.8	10.0
	England	13.3	12.9	9.9	10.2
	Wales	12.3	12.7	9.0	8.7
	Scotland	12.5	12.5	9.1	9.4
Females at age 65	UK	15.0	14.5	10.5	10.5
	GB	15.0	14.5	10.6	10.6
	England	15.1	14.6	10.6	10.7
	Wales	14.0	13.0	10.2	9.9
	Scotland	14.8	14.4	10.3	10.6

Trends in health expectancies

When comparing the trend over time, estimates of HLE derived from the complete dataset were generally higher than might be expected; while those derived from the cross-sectional specific data were largely comparable with recent trends. Examples of the increases in HLE for males and females at birth and at age 65 in GB are illustrated in figures 1 to 4. Trends in HLE over time since 2000–2002, including estimates for 2005–2007 based upon both the complete and cross-sectional specific data, are shown.

Figure 1 **HLE for males at birth: by complete and cross-sectional specific data 2000–2002 to 2005–2007**

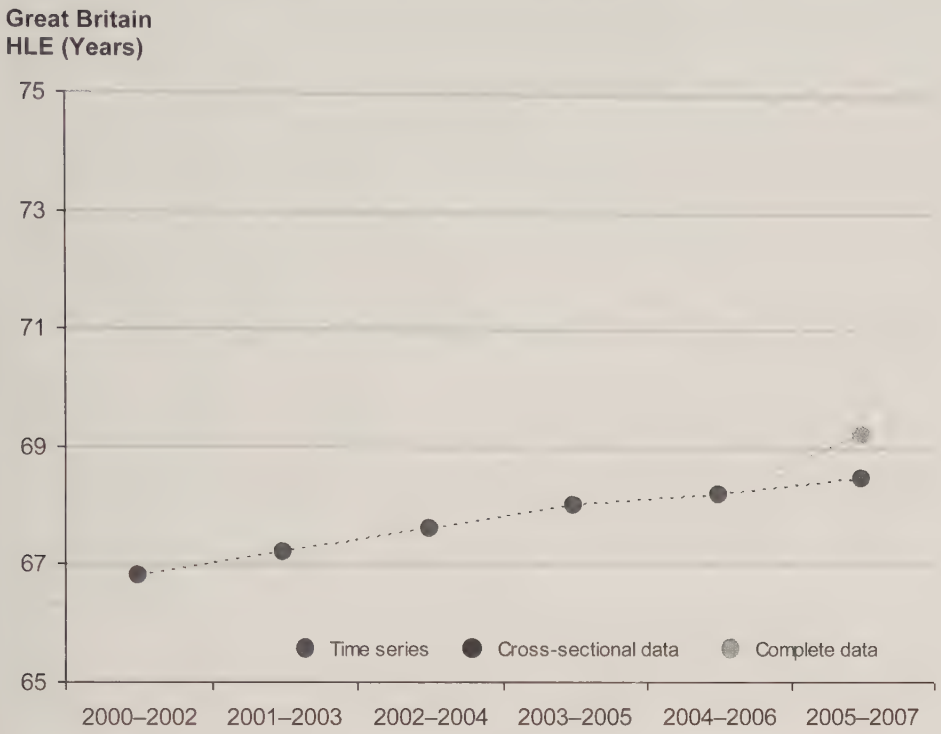


Figure 2 **HLE for females at birth: by complete and cross-sectional specific data 2000–2002 to 2005–2007**

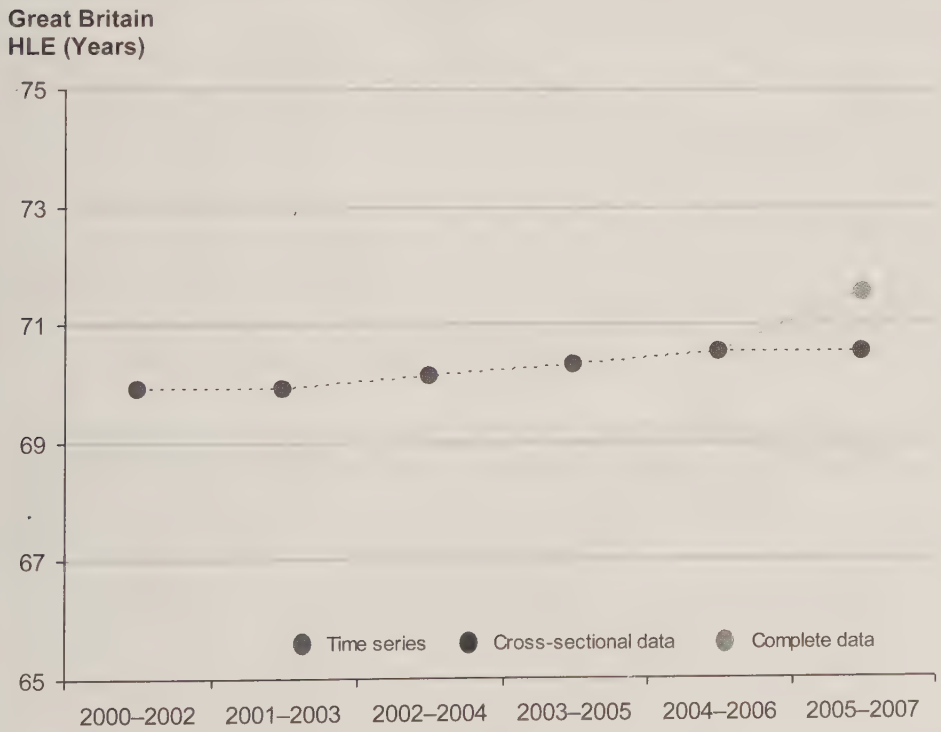


Figure 3 **HLE for males at age 65: by complete and cross-sectional specific data 2000–2002 to 2005–2007**

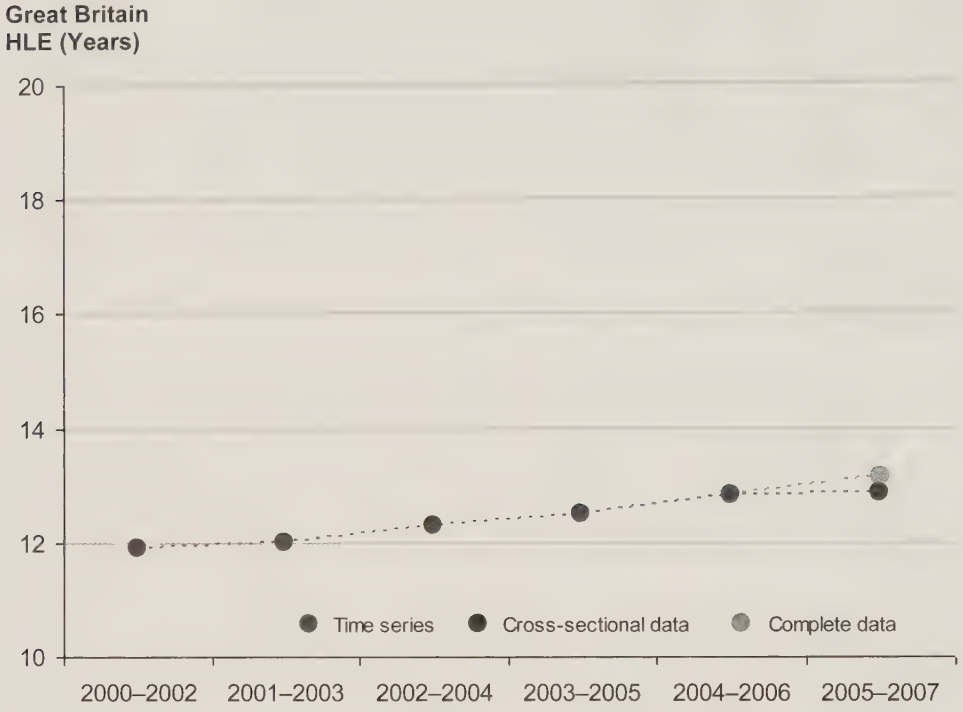
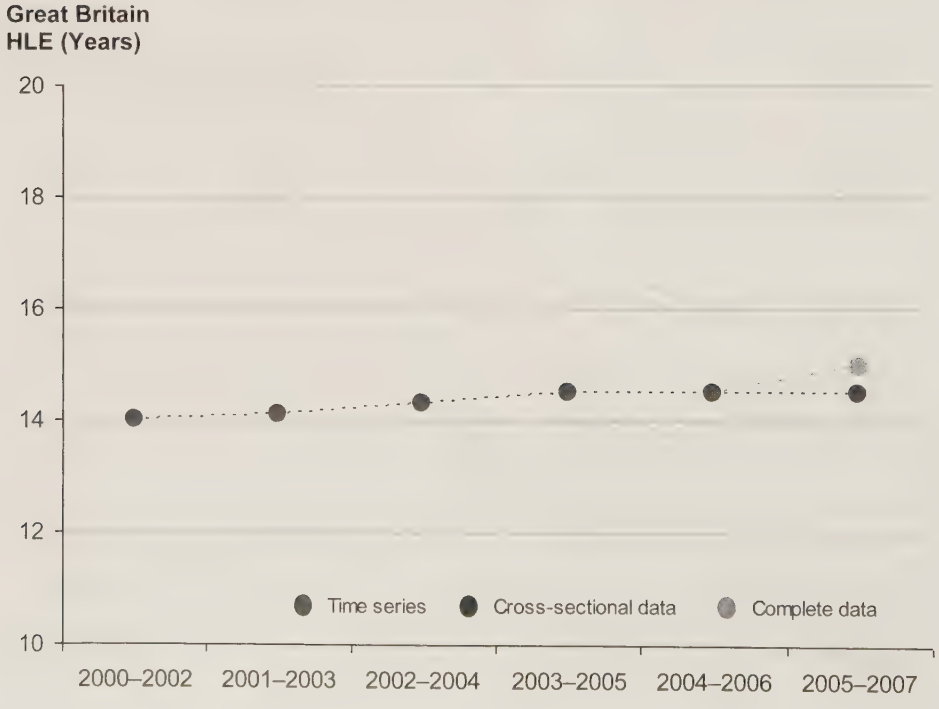


Figure 4 **HLE for females at age 65: by complete and cross-sectional specific data 2000–2002 to 2005–2007**



For males at birth in the UK, GB and England there was an average increase in HLE of 0.3 years in each aggregate period from 2000–2002 to 2004–2006 (range 0.2 to 0.5 years). By contrast HLE derived from the complete dataset in 2005–2007 was 1 year higher than in the previous period (2004–2006), twice the largest previous increase between two periods. Estimates of HLE derived from the cross-sectional specific data were within the range of increases in previous years (see Table 4).The relative increase in HLE for females at birth in the UK, GB and England was more pronounced; on average between 2000–2002 and 2004–2006. HLE had increased by 0.1 year (range -0.1 to 0.4 years) for this group, whereas estimates derived from the complete dataset were between 0.9 and 1.1 years higher compared with the previous period. For males and females at birth in Wales and Scotland, HLE derived from the complete data resulted in period increases outside the range seen in previous years, whereas estimates derived from the cross-sectional specific data were within this range (Table 4).

With the exception of Wales, the increase in HLE at age 65 for males was higher when calculated from the complete compared with the cross-sectional data and was at the extreme end of the increases seen over previous periods. For females at age 65, estimates of HLE derived from the complete dataset showed increases beyond the range seen in previous periods in all countries, while those from the cross-sectional specific data were predominantly consistent with previous periods (Table 4).

Application of the sampling design effect of the GHS to the calculation of standard errors

Incorporating the deff of the GHS into the calculation of standard errors surrounding estimates of HLE and DFLE over the periods 2000–2002 to 2004–2006 resulted in only minor changes to their associated 95 per cent CIs (Table 5).

In most cases the 95 per cent CI associated with estimates of HLE and DFLE became slightly wider, reflecting a loss in precision of the estimates overall. At worst the deff resulted in an 8 per cent increase in the width of associated 95 per cent CIs, although improvements of up to 3 per cent were also seen.

On the whole, this change did not unduly affect the ability to detect statistically significant differences between countries or over time. There was, however, a single instance in which the difference between countries was no longer significant using the new CIs: the difference in DFLE for males at birth between England and Scotland in 2001–2003 is no longer statistically significant.

There were also three instances in which significant differences over time were no longer present. For females at age 65 in GB and in England, estimates of HLE in 2004–2006 were no longer significantly different from 2001–2003, and in GB the difference between 2000–2002 and 2003–2005 estimates was also no longer significant. Comparisons of estimates of HLE and DFLE by aggregated period for the males and females at birth and at age 65 in the UK, Great Britain, England, Wales and Scotland are shown in the Annex, tables A1 to A5.

Table 4 Comparison of average change in HLE over time with estimates derived from complete and cross-sectional specific datasets

United Kingdom

Years

		Time series		Complete	Cross-sectional
		Average change between 2000–2002 and 2004–2006	Range	Change between 2004–2006 and 2005–2007	Change between 2004–2006 and 2005–2007
Males at birth	UK	0.3	0.3 to 0.5	1.0	0.2
	GB	0.3	0.2 to 0.4	1.0	0.3
	England	0.3	0.2 to 0.4	1.0	0.2
	Wales	0.2	-0.4 to 0.4	1.0	0.4
	Scotland	0.2	-0.5 to 0.9	1.6	0.8
Females at birth	UK	0.1	0.0 to 0.2	1.1	0.0
	GB	0.1	0.0 to 0.3	1.0	0.0
	England	0.1	-0.1 to 0.4	0.9	0.0
	Wales	-0.1	-0.5 to 0.6	1.7	0.2
	Scotland	0.2	-0.1 to 0.8	1.4	0.3
Males at age 65	UK	0.2	0.1 to 0.3	0.3	0.1
	GB	0.2	0.1 to 0.3	0.3	0.0
	England	0.2	0.1 to 0.4	0.4	0.0
	Wales	0.2	-0.4 to 0.9	0.0	0.4
	Scotland	0.1	-0.2 to 0.7	0.3	0.3
Females at age 65	UK	0.1	0.0 to 0.3	0.5	0.0
	GB	0.1	0.0 to 0.2	0.5	0.0
	England	0.1	-0.1 to 0.3	0.4	-0.1
	Wales	0.1	-0.3 to 0.4	0.7	-0.3
	Scotland	0.1	-0.1 to 0.4	0.6	0.2

Table 5 **Average precision of estimates of HLE and DFLE at birth and at age 65 by sex in original and deff adjusted 95 per cent CI: UK, GB and constituent countries 2000–2002 to 2004–2006**

United Kingdom

Years

		HLE			DFLE		
		Original 95 per cent CI	deff adjusted 95 per cent CI	Change in width of CI (per cent)	Original 95 per cent CI	deff adjusted 95 per cent CI	Change in width of CI (per cent)
Males at birth	UK	0.5	0.5	-3.0	0.6	0.6	-0.7
	GB	0.6	0.6	-4.0	0.7	0.7	-3.1
	England	0.6	0.6	-3.1	0.7	0.7	-3.0
	Wales	2.6	2.7	-2.7	2.9	3.0	-3.1
	Scotland	1.8	1.9	-5.5	2.1	2.1	-2.2
Females at birth	UK	0.5	0.5	-3.4	0.6	0.6	-1.7
	GB	0.6	0.6	-4.4	0.7	0.7	-4.7
	England	0.7	0.7	-4.0	0.7	0.8	-4.6
	Wales	2.7	2.7	-2.1	3.0	3.0	-2.5
	Scotland	1.8	1.9	-4.7	2.2	2.2	-3.3
Males at age 65	UK	0.4	0.4	0.6	0.4	0.4	3.2
	GB	0.4	0.4	0.7	0.5	0.5	2.4
	England	0.4	0.4	1.8	0.5	0.5	2.8
	Wales	1.8	1.9	-1.4	1.9	2.0	-0.5
	Scotland	1.3	1.4	-1.6	1.5	1.5	3.3
Females at age 65	UK	0.4	0.4	-4.1	0.4	0.4	-1.9
	GB	0.4	0.5	-5.2	0.5	0.5	-4.4
	England	0.5	0.5	-4.5	0.5	0.6	-4.7
	Wales	1.9	1.9	-2.2	2.0	2.0	-0.5
	Scotland	1.3	1.4	-8.2	1.5	1.6	-5.8

Discussion

The transition of the GHS from a cross-sectional to a rotating-panel longitudinal design in 2005 has an effect on the continuity of the ONS HE time series, established in 1981 for GB and in 2001 for the UK.

The prevalence of 'Good' or 'Fairly Good' health was significantly higher among respondents in the longitudinal compared with the cross-sectional elements of the survey in 2006 and 2007, indicating a selective loss or attrition of those in the poorest health from the sample. Interestingly, there were

no differences between the cross-sectional and longitudinal elements of the survey in terms of limiting long-standing illness in any period examined. In part, the stability of this measure, compared with general health, is due to the fact that it is on the whole more prevalent than 'Not Good' health; people with a limiting long-standing illness may nevertheless report their general health state as 'Good' or 'Fairly Good'.[4] The selective loss or attrition of people in the poorest health from the longitudinal element of the survey will therefore have less of an impact on the overall prevalence of limiting long-standing illness than on general health states.

The prevalence of 'Good' and 'Fairly Good' health remained higher when longitudinal and cross-sectional data were combined to produce a complete 2005–2007 dataset, compared with cross-sectional data alone over this period. Estimates of HLE calculated from the complete dataset were higher for males and females at birth in the UK, GB and England than those calculated from the cross-sectional specific data. The period increase in HLE according to the complete data was also implausibly higher than that of recent years, indicating that these data will exaggerate the expected years of life spent in 'Good' or 'Fairly Good' health, particularly at birth.

Although generally higher, the differences in the prevalence of limiting long-standing illness and in estimates of DFLE for males or females at birth or at age 65 using the complete data were comparable to those estimated using cross-sectional specific data.

Incorporating the longitudinal element of the GHS(L) into calculations of HE leads to a deviation in estimated HLE compared with recent trends, whereas, estimates calculated from the cross-sectional specific data are broadly in line with increases seen in recent years. The continued use of the cross-sectional survey data alone, excluding the longitudinal component, therefore, is advisable to maintain continuity of the ONS HE time series. This approach, however, decreases the precision of HE estimates.

This report does not include measures of the statistical significance of differences in HE between the complete and cross-sectional specific GHS(L) elements. It is likely that the covariation of health states between successive interviews in the longitudinal panels will have an effect on the size of SEs and associated 95 per cent CIs of HE estimates in the complete 2005–2007 data. The methodology to calculate SEs is, at the time of writing, under development and will be reported in a future article.

Models comparing estimates of HLE and DFLE based upon the exclusion of two-thirds of the GB survey sample over two or three years; equivalent to the size of the cross-sectional panel of the GHS(L) survey in 2005–2007 and 2006–2008 respectively, with estimates based on GHS sample sizes seen prior to 2004–2006, suggest that the precision of estimates will decline with falling sample sizes, (data not shown). On average it appears that the 95 per cent CI associated with estimates of HLE and DFLE for males and females at birth and at age 65 will increase in width by 15 to 34 per cent with two years of reduced data and 47 to 87 per cent with three years of reduced data. Although these increases seem large in terms of percentage increase, they equate at worst to increases in the width of 95 per cent CIs of less than 1 year at birth and less than 0.5 years at age 65. However, this loss of precision is likely to impair our ability to identify real differences in HE between countries or over time.

Since 2000–2002 the question designed to capture the prevalence of general health in the population has remained unchanged. However, estimates of HLE based on this question appear for the last time in 2005–2007: it has been replaced by a broader EU-harmonised general health question since 2008.[4]

As with DFLE, estimates of HLE based upon this new question will be less affected by the inclusion of longitudinal data in the GHS(L) in 2005–2007 (data not shown) because of the stronger relationship between states of 'Good' health derived from this question and the presence of a limiting long-standing illness. Therefore, the inclusion of the longitudinal GHS(L) panels will be considered again for HE estimates in 2006–2008 once the methodology to calculate the SE of the complete dataset has been developed and can be compared more accurately with the cross-sectional survey data from this period.

Conclusion

The transition of the GHS(L) from a cross-sectional to a rotating-panel longitudinal design in 2005 leads to increases in the estimated population prevalence of 'Good' and 'Fairly Good' health states and, therefore estimates of HLE that depart implausibly from the established time trend.

Using the GHS(L) cross-sectional specific data for estimating HE for the period 2005–2007 appears to represent the best way to maintain the continuity of this important series. With further methodological development and the replacement of the question traditionally used to calculate the prevalence of 'Good' or 'Fairly Good' health, it is conceivable that ONS will adopt the complete GHS(L) (now General Lifestyle module) datasets for the reporting of HE in the period 2006–2008. This is likely to avoid the loss of precision seen with the reduction in the survey sample when using only the cross-sectional panels.

ONS has improved the method to calculate the SE and associated 95 per cent CI of estimates of HE by incorporating the design effect of the GHS(L). This change has a negligible impact in the short term but ultimately improves the measured precision of these estimates.

Acknowledgements

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Quantifying the contribution of leading causes of death to mortality decline among older people in England, 1991–2005

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Abstract

Background

This paper quantifies the contribution of leading causes of death to mortality change between 1991 and 2005 for people aged 50 years and over in England.

Between 1971 and 2005 the life expectancy of men aged 50 years increased by more than in the whole of the rest of the 20th century. The ageing population has not only had an important impact on health and social services, but was responsible for sparking the pensions crisis affecting both the public and commercial sector.

Methods

A cross-sectional analysis was used to quantify trends in cause-specific mortality in terms of absolute and relative change between 1991 and 2005 in the population aged 50 and over. Absolute change is quantified in terms of the numbers of deaths prevented or postponed (or conversely, increased or brought-forward) in a year compared to deaths in the baseline year. The percentage change in age-standardised rates was used to identify relative change in causes of death.

Results

Between 1991 and 2005 there was a continuous decline in overall all-cause death rates for people aged 50 and over. Age-standardised mortality declined by 30 per cent for men, from 3,216 per 100,000 men to 2,267 per 100,000. This resulted in 86,477 fewer male deaths in 2005 than would have occurred had 1991 rates persisted. For women the age-standardised mortality rate declined by 20 per cent from 2,032 per 100,000 to 1,626 per 100,000, resulting in 48,406 deaths postponed (or fewer deaths) in 2005.

Of the total numbers of deaths postponed in 2005, ischaemic heart disease contributed the largest share for both men (45,244 deaths – 52.3 per cent) and women (33,601 – 69.4 per cent).

The greatest decline in the mortality rate was observed for influenza, for which age-standardised rates fell by 89 per cent for men and 93 per cent for women. However the proportion of deaths in which influenza was the underlying cause was extremely small and so did not contribute a large proportion in terms of the total fall in numbers of deaths.

Mortality rates from some conditions increased. Liver disease rates demonstrated some of the largest increases for both men and women aged 50 and over. For men the age-standardised mortality rate from liver disease increased by 104 per cent, resulting in 1,434 more deaths in 2005 than in 1991.

Conclusion

The trends of decreasing mortality rates from ischaemic heart disease and stroke have continued into the 21st century, however both causes continue to be the biggest killers in England. They are projected to remain so, and consequently, to contribute significantly to the burden of disease in the population.

The steady increase in liver disease mortality identified highlights the importance of tackling alcohol misuse as a public health priority.

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Introduction

During most of the 20th century, period life expectancy* increased due to falling mortality at younger ages, whereas life expectancy at middle age changed little. Between 1971 and 2005 period life expectancy in men aged 50 years increased by more than in the rest of the century combined (an increase of 6.2 years, compared to an increase of 4.8 years between 1900 and 1970). The equivalent findings for women were 4.3 years and 8.3 years. Over the period of this study, life expectancy at age 50 in England increased by 3.5 years among men and 2.3 years among women.[1] The ageing of the population, resulting from the unprecedented increase in life expectancy at older ages from the 1970s, had important impacts not only for health and social services but also sparked the pensions' crisis affecting both the public and commercial sector.[2,3]

* the average number of years a person would live, if they experienced the age-specific mortality rates for that time period throughout their life

Previous investigations of cause-specific mortality trends were limited to analyses up to the end of the 20th century when the ninth revision of the International Classification of Disease (ICD) coding system was in use. The latest revision, ICD10, was introduced in 2001. This revision represents the biggest change in coding of mortality for more than 50 years and fundamentally affects the way that cause of death and trends in mortality for specific causes of death are analysed.[4,5] Failure to adjust for this coding change can result in artefactual changes in mortality patterns, secondary to coding changes rather than to real changes in underlying patterns of mortality. Consequently this study used bridging codes which allowed analysis of mortality trends using the more recent data from 1991 up to 2005.

Due to the absence of comparability ratios allowing consistent back coding between ICD8 (used in the 1970s) and ICD10, it was not possible to analyse cause-specific change in mortality from the 1970s onwards.

This study identified the diseases that contributed most to the absolute and relative decline in overall mortality between 1991 and 2005 in men and women aged 50 and over in England. It is important to consider both absolute and relative measures of change to obtain a comprehensive understanding of the underlying patterns of mortality decline.[6] Absolute declines in mortality are important when assessing changing patterns of the burden of disease at the population level. Analyses of absolute changes in total numbers of deaths tend to be dominated by the 'big killers' such as ischaemic heart disease (IHD), because even a small fall in rates results in large reductions in numbers of IHD deaths. Relative changes in mortality are of value in the identification of rarer causes of death that may have fallen (or risen) more rapidly than more common causes of mortality. Such findings may be important early indicators of future changes in patterns of cause-specific mortality.

Methods

Sources

Deaths

This study was based on an extract of ONS mortality data for all deaths occurring in England in those aged 50 and over between 1991 and 2005. Data were provided for each calendar year and included all deaths occurring in this year, aggregated by five-year age group (50–54 to 85 and over years), sex and underlying cause of death, coded to four-digit ICD9 or ICD10 codes.

Coding of mortality saw two major changes over the period of the study. Firstly, there was a change in the ICD volume used – from 9 to 10. Within this analysis this change was overcome by ensuring any specific causes of mortality included in the study had comparable codes in both ICD9 and ICD10. Secondly, the approach used to code deaths to give the underlying cause of mortality changed (Rule 3).

To quantify the effect of both coding changes, the Office for National Statistics (ONS) carried out a bridge coding exercise with all deaths in 1999 independently coded to both ICD9 and ICD10. The changes found were expressed as comparability ratios, defined as the number of deaths coded to a particular cause by ICD10 divided by the number coded to that cause in ICD9.[5] ONS produces confidence intervals for each of the calculated comparability ratios. When the confidence intervals

contain 1, this indicates the difference between ICD9 and ICD10 coding was not significant and no comparability ratio adjustments were necessary. These ratios are only applicable for the period 1993–2000, during the period when ONS used automated cause coding.

For this analysis comparability ratios were applied to raw counts of deaths between 1993 and 2000, for causes where the bridge code ratio was significantly different from 1 to produce adjusted counts consistently coded to ICD10 throughout the study period. For the years 1991–1992 mortality was not coded using the automated coding system and the change in Rule 3 in ICD10 is considered to be similar to the use of coding during the period 1984–1992. Consequently minimal changes occurred in the way deaths were coded when compared to coding using ICD10 and so it was not necessary to apply the adjustment. There is a slight limitation to this approach as it is not possible to quantify exactly how similar data in 1991–1992 are to the data coded to ICD10.[5]

The selection of causes of death to include in the study was based on those identified as leading causes of mortality in the UK over the period 1991–2005.[7,8] The causes included also had to have ICD9 to ICD10 comparability ratios. Twenty-nine specific causes of mortality were included within the analysis (Box 1). In 1991, 85 per cent of deaths in men and 79 per cent of deaths in women were classified under one of these specific causes. The corresponding figures in 2005 were 77 per cent and 71 per cent respectively. Causes of death not included in these 29 groups have been coded to 'other' in this analysis.

Populations

The populations used were provided by the ONS Population Estimates Unit in November 2006 and were mid-year estimates for each year, based on decennial censuses.

Analysis

Age-specific and age-standardised rates

For each of the years 1991–2005, cause-specific death rates by sex in each five-year age band from 50–54 onwards were calculated. Age-standardised mortality rates were calculated using the European standard population as the reference population, with rates calculated per 100,000 population aged over 50 years (Box 2).

Calculation of relative and absolute change in cause-specific mortality

Relative change in mortality was defined as the percentage change in the age-standardised rate between 1991 and subsequent years (Box 2).

Absolute change was quantified by estimating the number of additional deaths that would have occurred in each year if the population had been subject to the death rates observed in 1991. This is equivalent to the difference between the observed and expected number of deaths based on 1991 mortality rates. Four steps were taken to quantify this:

1. Calculation of age-specific mortality rates by cause for each of the five-year age bands for the base line year (1991)

2. Calculation of expected rates of mortality: The age-specific death rates for the baseline year were applied to the population (by five-year age band) in each of the subsequent years. For

example the age-specific rate for each specific cause of mortality in 1991 was multiplied by the population of the corresponding age group in each of the subsequent years, 1992–2005. This gave the number of deaths, by cause and sex, that would have been expected to have occurred in each year had the mortality experience of baseline year remained constant

3. Calculation of difference between observed and expected mortality: The observed number of deaths occurring within each of the five-year age bands after applying the comparability ratios, where necessary, was then subtracted from the expected numbers. This gave the potential number of deaths postponed within each five-year age band, by each specific cause of death and for all-cause mortality

4. Deaths postponed attributable to specific causes of mortality: The numbers of deaths postponed in each five-year age band were added together to give a total number of lives saved in the index year compared to baseline year

'Deaths postponed' and 'deaths brought forward'

In the last three decades of the 20th century, because of significant year-on-year mortality rate improvements, more people survived longer. In this cross-sectional analysis the term 'deaths postponed' has been used to summarise the total decline in the burden of disease resulting from lower death rates from age 50 onwards in any specific year, compared to baseline year (1991). The equivalent estimate for causes, where rates have increased compared with the baseline year, has been termed 'deaths brought forward'. It must be emphasised that the count of deaths postponed (or brought forward) in any one year, for example 2005, provides a measure of deaths postponed in that year alone had the baseline year persisted. It is not a cumulative measure of the deaths postponed in every year since 1991. It represents the summation of the fewer (or more) deaths that would have occurred in each age and sex sub-population in that year had the corresponding 1991 age and sex-specific mortality rates remained unchanged (for example expected deaths applying 1991 rates minus observed deaths in 2005). A similar method had been used previously.[9,10,11]

In this analysis deaths postponed are presented as a positive number in the tables – indicating fewer deaths than expected. Conversely, deaths brought forward are presented as a negative number in the tables (indicating more deaths than expected).

Box 1 Causes of death analysed, 1991–2005

Cause of death	ICD9	ICD10	Comparability ratios	
			Male	Female
Accidents	E800–E928 Excl. E870–E879	V01-X59	1	1.011
Aortic aneurysm and dissection	441	I71	1	1
Bronchitis, emphysema and other chronic obstructive pulmonary disease	490–492, 496	J40–J44	1.04	1.035
Cerebrovascular diseases	430–438	I60–69	1.13	1.09
Diseases of the kidney and ureter	580–594	N00-N28	1.03	1
Diseases of the liver	570–573	K70–K76	1.06	1.078
Influenza	487	J10–J111	1	1
Ischaemic heart diseases	410–414	I20–I25	1.01	1.007
Malignant neoplasm of colon	153	C18	1.02	1.015
Malignant neoplasm of pancreas	157	C25	1	1
Malignant neoplasm of rectosigmoid junction, rectum, anus and anal canal	154	C19–C21	1	1.017
Malignant neoplasms of lymphoid, haematopoietic and related tissue	200–208	C81–C96	1.05	1.047
Malignant neoplasms: Bladder	188	C67	1	1.016
Malignant neoplasms: Breast	174–175	C50	1.11	1.027
Malignant neoplasms: Malignant melanoma of skin	172	C43	0.97	0.955
Malignant neoplasms: Oesophagus	150	C15	1.01	1
Malignant neoplasms: Other malignant neoplasm of skin	173	C44	1	1.14
Malignant neoplasms: Prostate	185	C61	1.04	N/A
Malignant neoplasms: Stomach	151	C16	1.02	1
Malignant neoplasms: Trachea, bronchus and lung	162	C33–C34	1	0.996
Other causes: Asthma	493	J45–J46	1	1.056
Other causes: Diabetes mellitus	250	E10–E14	1.04	1.042
Other causes: Suicide and undetermined deaths	E950–E959, E980–E989 exc.E988.8	X60–X84, Y10–Y34 exc. Y33.9	1	1
Other causes: Ulcers	531–533	K25–K28	1	1
Other heart disease	415–429	I26–I51	1	1
Parkinsons disease	332	G20	1.49	1.489
Pneumonia	480–486	J12–J18	0.58	0.644
Malignant neoplasms: Cervix uteri	180	C53	N/A	1
Malignant neoplasms: Ovary and other uterine adnexa	183	C56	N/A	0.992

Box 2 Worked example of calculations used in the analysis

Age	Population in 1991	Population in 2005	Number of deaths 1991	Death rate per 100,000 population 1991[1]	Number of deaths 2005	Death rate per 100,000 population 2005[1]	Expected death 2005[3]	Absolute change: Deaths postponed /brought forward[4]	Relative change: Percentage change death rates 2001 vs 1991[5]
Cause X (mortality rates falling)									
50–54	1,356,300	1,775,900	2,770	204.2	2,060	116.0	3,627	1,567	43.2
55–59	1,279,700	1,428,700	4,620	361.0	3,040	212.8	5,158	2,118	41.1
60–64	1,233,800	1,259,200	7,890	639.5	4,540	360.5	8,052	3,512	43.6
65–69	1,148,900	1,099,700	12,060	1,049.7	6,760	614.7	11,544	4,784	41.4
70–74	878,500	940,500	13,930	1,585.7	9,680	1,029.2	14,913	5,233	35.1
75–79	652,800	740,900	15,470	2,369.8	11,960	1,614.3	17,558	5,598	31.9
80–84	376,600	407,600	12,670	3,364.3	9,760	2,394.5	13,713	3,953	28.8
85 and over	191,300	277,000	9,370	4,898.1	10,400	3,754.5	13,568	3,168	23.3
Total	**7,117,900**	**7,929,500**	**78,780**	**991.41[2]**	**58,200**	**648.81[2]**	**87,763**	**29,563**	**34.6**
Cause Y (mortality rates increasing)									
50–54	1,356,300	1,775,900	180	13.3	480	27.0	236	-244	-103.7
55–59	1,279,700	1,428,700	210	16.4	410	28.7	234	-176	-74.9
60–64	1,233,800	1,259,200	230	18.6	370	29.4	235	-135	-57.6
65–69	1,148,900	1,099,700	240	20.9	270	24.6	230	-40	-17.5
70–74	878,500	940,500	190	21.6	220	23.4	203	-17	-8.2
75–79	652,800	740,900	140	21.4	155	20.9	159	4	2.5
80–84	376,600	407,600	60	15.9	70	17.2	65	-5	-7.8
85 and over	191,300	277,000	20	10.5	40	14.4	29	-11	-38.1
Total	**7,117,900**	**7,929,500**	**1,270**	**17.31[2]**	**2,015**	**25.91[2]**	**1,415**	**-600**	**-49.3**

Definitions

1 Age-specific death rate: total number of deaths in age group / total population in age group
2 Age-standardised rate: standardised to the EU standard population
3 Expected number of deaths: age-specific death rate in 1991 * population in age group in 2005
4 Absolute change in mortality: expected deaths - observed deaths
5 Relative change in mortality: (age-specific death rate in 1991 - age-specific death rate in 2005) / age-specific death rate 1991 * 100

Results

All-cause mortality

Men

Between 1991 and 2005, all-cause mortality rates declined by 30 per cent in men aged 50 and over, from 3,216 deaths per 100,000 men in 1991 to 2,267 deaths per 100,000 in 2005. This fall resulted in 86,447 fewer deaths (deaths postponed) in 2005 than would have been expected had 1991 rates persisted (Table 1).

Declines in mortality were seen in all five-year age bands. The greatest relative decline in 2005 compared to 1991 was in the 65–69 age group where the age-specific death rate declined by 40 per cent, from 3,034 deaths per 100,000 in 1991 to 1,816 deaths per 100,000 in 2005. In absolute terms, the 75–79 age band had the biggest decline: in 2005 there were 17,235 deaths postponed in this age group.

The five most important causes of mortality in 1991 were ischemic heart disease (IHD); cerebrovascular diseases (CVD); cancers of the trachea, bronchus and lung; chronic obstructive airways disease (COPD); and pneumonia respectively, accounting for 60 per cent of all deaths in the age group studied. These remained the most common causes of mortality in 2005 when they accounted for 47 per cent of deaths (Table 1).

Women

There were substantial declines in the mortality rate in women aged 50 and over between 1991 and 2005. There were 48,406 deaths postponed in 2005, compared to deaths expected based on 1991 mortality. The directly age-standardised mortality rate declined from 2,032 deaths per 100,000 women in 1991 to 1,626 per 100,000 in 2005, a relative decline of 20 per cent (Table 1).

The greatest relative decline, 32 per cent fall in the mortality rate, was seen in the 65–69 age group within which 6,379 deaths were postponed. In absolute terms the age group in which most deaths were postponed was the 80–84 year cohort: 10,635 more deaths would have been expected in 2005 had the age-specific death rate in 1991 persisted.

For women the top five causes of mortality in 1991 were IHD; CVD; breast cancer; pneumonia; and cancers of the trachea, bronchus and lung respectively, accounting for 53 per cent of all deaths. IHD remained the most common cause of mortality in 2005 and the five most common causes of death accounted for 42 per cent of all deaths (Table 1).

Table 1 **Top five causes of mortality in men and women, 1991 and 2005**

		Age standardised rates per 100,000 population		Relative change (%)	Absolute change (numbers of deaths postponed)
		1991	2005		
Men	Ischaemic heart diseases (IHD)	980.9	475.6	51.5	45,243.7
	Cerebrovascular diseases (CVD)	315.9	182.7	42.2	12,815.2
	Malignant neoplasms: Trachea, bronchus and lung	281.6	171.0	39.3	9,619.7
	Bronchitis, emphysema and other chronic obstructive pulmonary disease (COPD)	208.1	124.6	40.1	8,049.6
	Pneumonia	130.8	117.2	10.4	1,366.5
	All deaths (all causes)	3,215.7	2,266.9	29.5	86,447.4
Women	Ischaemic heart diseases (IHD)	479.4	228.6	52.3	33,601.0
	Cerebrovascular diseases (CVD)	275.3	172.4	37.4	15,349.4
	Malignant neoplasms: Breast	116.7	82.8	29.1	3,330.7
	Pneumonia	112.0	99.7	11.0	2,652.9
	Malignant neoplasms: Trachea, bronchus and lung	98.4	95.4	3.1	-556.7
	All deaths (all causes)	2,031.7	1,625.8	20.0	48,405.8

Causes are listed in rank order of descending deaths rates in 1991

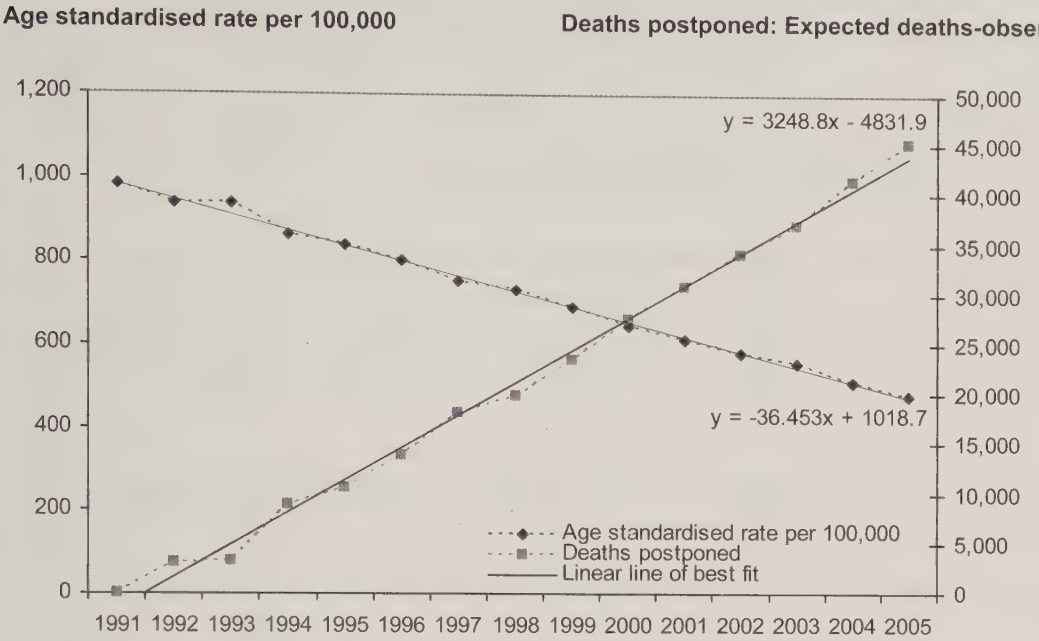
Absolute decreases in mortality

Men

In 2005 86,447 deaths were postponed. The five conditions with the greatest absolute declines were IHD (45,244 deaths postponed); CVD (12,815 deaths postponed); cancers of the trachea, bronchus and lung (9,620 deaths postponed); COPD (8,050 deaths postponed); and stomach cancer (2,756 deaths postponed). Together these accounted for 91 per cent of the total number of deaths postponed and resulted in 78,485 fewer deaths in 2005 than if 1991 rates had persisted. Other than these five, no cause of death contributed more than 2 per cent to the total deaths postponed (Table 2).

The five causes of mortality resulting in the greatest absolute declines in 2005 also contributed most to the declines in mortality throughout the period 1991–2005. IHD accounted for the largest number of deaths postponed in every year from 1991 to 2005. In 1992 and 1993 the number of observed deaths and the number expected were relatively similar. A line of best fit for the trend in IHD mortality suggests on average there were around 3,249 fewer deaths per year than expected, based on mortality rates in 1991 (Figure 1A).

Figure 1A Trends in ischaemic heart disease mortality in men, 1991–2005



IHD was the biggest contributor to absolute decline in all age groups in 2005 compared to 1991. Those aged 70–74 and 75–79 contributed the largest number of deaths postponed from IHD – contributing, respectively, 7,988 fewer deaths than expected, (18 per cent of all IHD deaths postponed) and 8,536 fewer IHD deaths than expected (19 per cent of all IHD deaths postponed). In 2005 CVD and cancer of the trachea, bronchus and lung were major contributors to absolute mortality decline in all age groups.

Women

In 2005 48,406 deaths were postponed (Table 2). The five causes with the greatest absolute declines were IHD (33,601 deaths postponed), CVD (15,349 deaths postponed), breast cancer (3,331 deaths postponed), pneumonia (2,653 deaths postponed) and colon cancer (1,894 deaths postponed).Together these causes resulted in 56,828 deaths being postponed. The number of deaths postponed from these five causes is greater than the total number of deaths postponed, because some causes of mortality saw an increase in the number of deaths and the total figure balances out the increases and decreases.

As in men, IHD accounted for the largest absolute decline in mortality in all years compared to 1991. The gradient of the line of best fit indicated for every year there were 2,405 deaths postponed, compared to deaths expected based on 1991 IHD mortality rates (Figure 1B).

The other four main contributors to absolute declines in mortality in women showed fluctuation over time in their contribution to absolute falls in mortality, although CVD and breast cancer were consistently among the top causes of absolute mortality decline in each year.

Analysis by age group found IHD was one of the biggest contributors to decline in all ages. The 80–84 and 85 and over age groups attributed the greatest numbers of deaths postponed from IHD. There were 7,474 postponed deaths in the 80–84 group (22 per cent of the IHD death reduction) and 8,780 postponed deaths in the 85 and over group (26 per cent of the IHD death reduction).

Figure 1B Trends in ischaemic heart disease mortality in women, 1991–2005

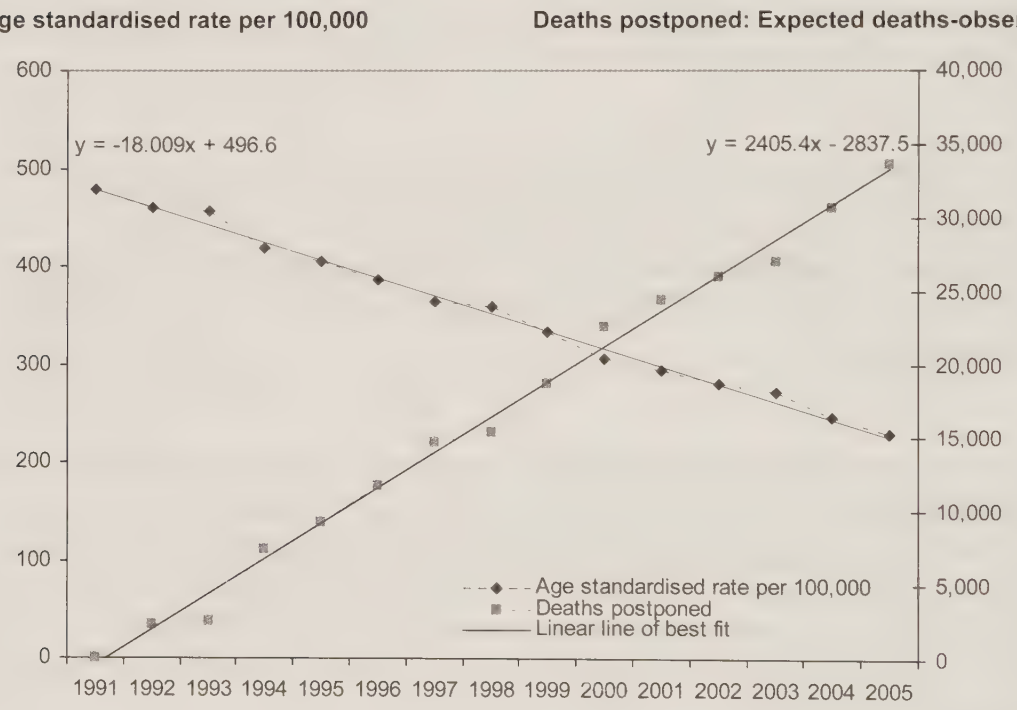


Table 2 Causes of mortality showing the greatest absolute mortality declines in 2005 compared to 1991 (deaths postponed), by age group and sex

SEX	Cause	Observed deaths								Expected deaths								Expected - Observed								Deaths post-poned
		50-54	55-59	60-64	65-69	70-74	75-79	80-84	85 plus	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85 plus	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85 plus	Total
Males	Ischaemic heart diseases (IHD)	1378	2376	3260	4439	6177	8015	8967	9443	3033	5675	7963	11279	14185	16551	15957	14678	1655	3299	4703	6840	7866	8536	6990	5235	45044
	Cerebrovascular diseases (CVD)	266	457	647	1057	1850	3158	4256	5892	442	843	1309	2267	3842	6006	7862	8318	176	386	662	1210	1992	2847	3606	2426	12815
	Malignant neoplasms Trachea bronchus and lung	527	1046	1718	2207	2721	3078	2485	1622	933	1533	2650	4218	4716	4700	3578	2176	406	787	1132	2011	1995	1622	1119	554	9630
	Bronchitis emphysema and other chronic obstructive pulmonary disease (COPD)	125	311	687	1111	1676	2581	2801	2696	167	476	981	1953	2999	4189	4685	4550	42	165	294	522	1323	1608	1892	1854	8050
	Malignant neoplasms Stomach	72	134	225	365	490	575	512	381	142	363	585	775	981	1053	958	746	70	229	360	405	441	478	446	365	2756
	Total	6857	10929	14492	19753	27750	36834	42461	51425	8911	16017	22527	32999	48054	54069	57545	61525	2054	5088	7835	13246	15834	17235	15084	10100	86447
Females	Ischaemic heart diseases (IHD)	290	568	971	1716	2930	5212	8209	15922	595	1600	2619	4929	7672	11419	15693	24702	305	1032	1648	3213	4742	6207	7474	8780	33601
	Cerebrovascular diseases (CVD)	232	339	464	811	1646	3518	6457	15561	328	578	957	1750	3243	6459	10613	20449	96	239	493	939	1597	2941	4156	4888	15349
	Malignant neoplasms Breast	667	1049	935	938	1045	1300	1346	1958	1079	1487	1389	1487	1458	1588	1800	2828	412	438	454	549	413	288	454	870	3331
	Pneumonia	87	124	200	326	639	1471	3105	11912	47	102	172	309	672	1585	3579	14102	40	22	28	17	33	64	474	2190	2855
	Malignant neoplasm of colon	90	212	262	377	518	669	856	1095	191	321	459	607	758	922	1154	1562	101	109	197	230	240	253	298	467	1894
	Total	4529	7345	9185	13519	19975	32393	48243	106287	5519	9758	13994	19898	28053	41606	58878	112576	990	2413	4809	6379	8078	9293	10635	6289	48406

Causes of death are ranked in descending order of deaths postponed
Counts of observed numbers of deaths are adjusted using ONS comparability ratios
1 total includes deaths from all causes, not just the five listed here

Table 3 Causes of mortality with the highest relative decline in mortality rates in 2005 compared to 1991

Sex	Cause	Age standardised rates per 100,000 population		Relative change (%)	Deaths postponed*	Percentage of all deaths postponed in 2005
		1991	2005			
Men	Influenza	0.8	0.1	88.8	69.3	0.1
	Asthma	8.3	3.0	63.7	447.0	0.5
	Ischaemic heart diseases	980.9	475.6	51.5	45,243.7	52.3
	Malignant neoplasms: Stomach	60.7	30.0	50.6	2,756.4	3.2
	Diabetes mellitus	43.2	24.8	42.6	1,724.3	2.0
	Total	**3,215.7**	**2,266.9**	**29.5**	**86,447.0**	**100.0**
Women	Influenza	1.1	0.1	92.8	169.2	0.3
	Ischaemic heart diseases	479.4	228.6	52.3	33,601.0	69.4
	Malignant neoplasms: Cervix uteri	12.0	5.8	51.2	561.5	1.2
	Malignant neoplasms: Stomach	24.1	12.4	48.5	1,579.3	3.3
	Diabetes mellitus	31.8	18.1	43.2	1,869.9	3.9
	Total	**2,031.7**	**1,625.8**	**20.0**	**48,406.0**	**100.0**

* Number of deaths that would have occurred had the population experienced the same death rates as in 1991
Causes of death are ordered in descending order of magnitude of relative decline in mortality rates

Men

The total relative decline in the age-standardised mortality rate in men in 2005 compared to 1991 was 30 per cent (Table 3). Of the causes of death contributing to the decline, influenza showed the biggest relative decline (88.8 per cent), although it was a rare cause of mortality (the age-standardised mortality rate fell from 0.8 to 0.1 per 100,000 men over the period studied).

The other conditions with the largest relative declines in mortality rates were asthma (63.7 per cent decline), IHD (51.5 per cent), stomach cancer (50.6 per cent) and diabetes (42.6 per cent). Other major causes of death in 1991 showed relative declines in 2005 ranging from 10 per cent for pneumonia to 42 per cent for CVD.

There were yearly fluctuations in the causes showing the greatest relative decline in mortality rates, although asthma and influenza consistently remained among the causes with the biggest relative declines (Table 4).

Table 4 Causes of mortality with the highest relative decline in age-standardised mortality rates in each year compared to 1991, by sex

Sex	Year	Cause	Age standardised rate 1991	Age standardised rate in year	Relative change (%)	Deaths postponed
Men	1992	Diseases of the kidney and ureter	23.6	16.0	32.1	596.6
	1993	Other malignant neoplasm of skin	3.3	2.3	30.7	66.5
	1994	Influenza	0.8	0.2	72.7	42.9
	1995	Asthma	8.3	5.6	32.8	201.2
	1996	Asthma	8.3	4.7	42.9	268.8
	1997	Asthma	8.3	5.3	36.5	226.4
	1998	Asthma	8.3	4.9	41.2	260.7
	1999	Asthma	8.3	4.6	44.2	284.0
	2000	Asthma	8.3	4.2	49.6	323.5
	2001	Influenza	0.8	0.1	85.4	61.2
	2002	Influenza	0.8	0.1	86.2	62.4
	2003	Influenza	0.8	0.2	77.8	58.1
	2004	Influenza	0.8	0.1	89.5	67.6
	2005	Influenza	0.8	0.1	88.8	69.3
Women	1992	Diseases of the kidney and ureter	15.7	12.2	22.2	519.9
	1993	Diabetes mellitus	31.8	25.5	19.8	967.0
	1994	Influenza	1.1	0.2	77.1	131.7
	1995	Diabetes mellitus	31.8	24.3	23.4	1174.5
	1996	Diabetes mellitus	31.8	22.6	29.0	1380.2
	1997	Malignant neoplasms: Cervix uteri	12.0	8.3	30.7	308.4
	1998	Influenza	1.1	0.4	61.5	108.3
	1999	Malignant neoplasms: Cervix uteri	12.0	7.5	37.8	390.1
	2000	Malignant neoplasms: Stomach	24.1	15.1	37.1	1190.0
	2001	Influenza	1.1	0.1	89.7	163.2
	2002	Influenza	1.1	0.1	90.5	162.2
	2003	Influenza	1.1	0.2	80.6	144.4
	2004	Influenza	1.1	0.1	93.1	163.7
	2005	Influenza	1.1	0.1	92.8	169.2

Women

The total relative decline in age-standardised mortality rate in women in 2005 compared to 1991 was 20 per cent. In common with men, influenza showed the biggest relative decline (92.75 per cent decrease in the age-standardised rate) although it was (as in men) a rare cause of death (the age-standardised rate of mortality fell from 1.1 to 0.1 per 100,000 women in 2005) (Table 3). In most age groups, influenza and IHD were causes showing some of the biggest relative declines.

The other conditions with the largest relative declines in mortality rates were IHD (52.3 per cent decline), cervical cancer (51.22 per cent), stomach cancer (48.5 per cent) and diabetes (43.2 per cent). As with men, other than IHD, causes that had the largest relative declines were not leading causes of mortality. Among the five most common causes of death in 1991, the relative decline in age-standardised rates ranged from 3 per cent for lung cancer to 52 per cent for IHD.

The rank position in the causes of death showing the greatest relative decline in rates varied annually, with influenza showing the greatest relative decline in age-standardised rates in most years (Table 4).

Combining relative and absolute declines in mortality

Men

The distribution of causes of relative and absolute decline in 2005 was examined graphically by plotting the number of deaths postponed (absolute change) against the percentage change in the age-standardised rate (relative change) (Figure 2A). The causes of mortality showing the biggest decreases in absolute and relative mortality are located in the top right-hand quadrant of the graph. Analysis found the causes with the largest absolute and relative declines were IHD; CVD; cancer of trachea, bronchus and lung and COPD. Figure 2A is heavily dominated by the large declines in both absolute and relative mortality in IHD. Influenza and asthma are found on the top central part of Figure 2A indicating a large relative decline, but only a very small absolute change, that is the total number of deaths postponed was low.

Women

In women, using a scatter plot to compare absolute and relative declines showed IHD, CVD and breast cancer had the largest decline in mortality (Figure 2B).

Figure 2A **Men: Comparison of relative and absolute change in mortality between 1991 and 2005**

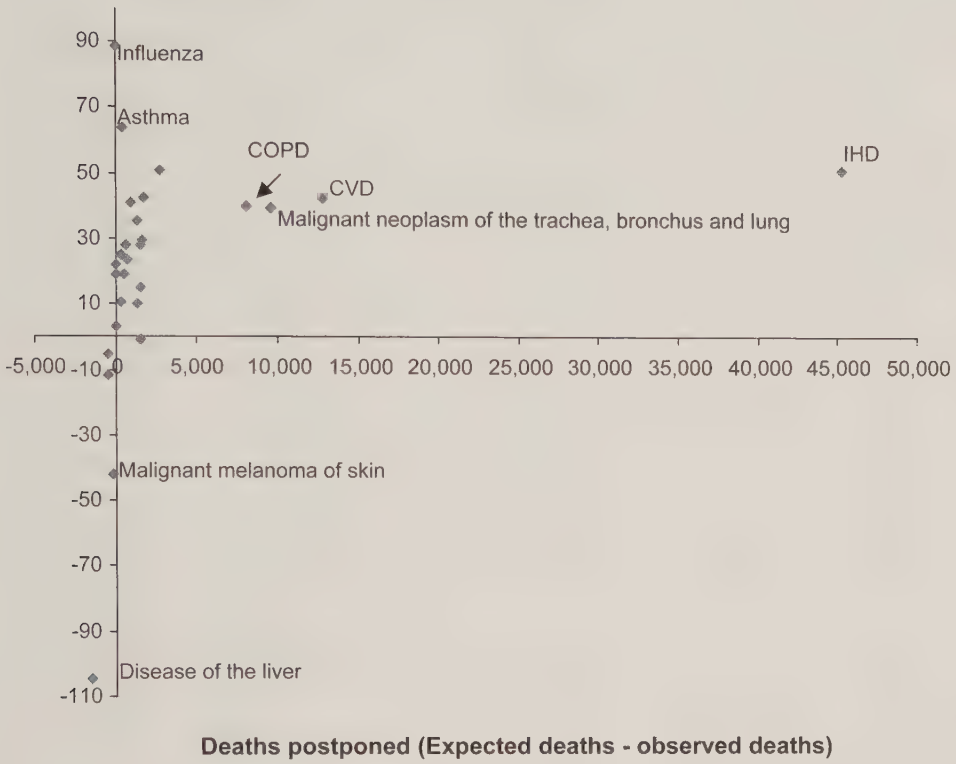


Figure 2B Women: Comparison of relative and absolute change in mortality between 1991 and 2005

Absolute increases in mortality

Men

Five causes of mortality saw absolute increases in mortality in men in 2005 compared to 1991 (Table 5). The greatest absolute increase was in liver disease; where there were 1,434 deaths brought forward compared to the number expected based on 1991 mortality rates. Other causes with absolute increases were 'other heart disease'; oesophagus cancer; skin cancer; and accidents.

In the period 1992–2002 'other heart disease' showed the greatest increase in deaths compared to 1991. Since 2003, however, the biggest absolute increases were in liver disease mortality.

Table 5 The five causes of mortality showing the greatest increases in absolute mortality and in relative mortality (mortality rates) in 2005 compared to 1991, by age and sex

SEX	Cause	Expected deaths - observed deaths								Deaths brought forward	Age standardised rate per 100,000		Relative change (%)
		50-54	55-59	60-64	65-69	70-74	75-79	80-84	85plus		1991	2005	
Male	Diseases of the liver	-422.4	-355.7	-281.1	-146.4	-100.8	-39.8	-52.4	-35.1	-1433.8	18.5	37.9	-104.4
	Malignant neoplasms: Malignant melanoma of skin	-14.5	-11.7	-10.3	-25.3	-52.9	-37.5	-30.0	-28.8	-211.0	5.7	8.0	-41.7
	Malignant neoplasms: Oesophagus	23.3	-101.0	-104.7	56.8	-6.8	-105.5	-127.8	-80.6	-446.2	38.7	43.3	-11.9
	Other heart disease	-1.5	17.6	-34.9	61.7	55.3	47.3	-189.7	-428.2	-472.4	86.7	91.4	-5.4
	Accidents	34.8	24.4	48.8	72.1	-7.7	26.8	-61.6	-211.5	-73.8	35.0	35.2	-0.7
	Total[1]	2254.2	5088.1	7835.3	13246.4	15303.8	17235.0	15084.1	10400.3	86447.4	3215.7	2266.9	29.5
Female	Diseases of the liver	-176.3	-141.5	-85.4	-29.6	-34.9	-21.9	-77.2	-14.6	-581.4	12.3	19.2	-56.4
	Malignant neoplasms: Malignant melanoma of skin	0.3	8.1	-8.5	-10.1	-20.1	-21.5	-23.2	-31.9	-106.9	4.5	5.3	-16.5
	Other heart disease	-36.1	-10.2	-2.3	-65.5	-88.9	-9.9	-84.0	-474.8	-771.6	73.2	78.4	-7.1
	Malignant neoplasm of pancreas	3.6	-20.2	-6.5	-26.5	-44.7	-21.8	-10.0	5.0	-121.2	24.8	26.0	-4.9
	Bronchitis, emphysema and other chronic obstructive pulmonary disease (COPD)	-3.4	77.5	140.9	295.7	-35.0	-534.0	-879.5	-276.4	-1214.2	72.5	75.9	-4.7
	Total[1]	989.8	2413.1	4408.8	6379.0	8077.8	9212.9	10635.4	6288.9	48405.8	2031.7	1625.8	20.0

1 total includes deaths from all causes, not just the five listed here

Women

In 2005, eight causes of mortality showed absolute increases compared to 1991. COPD had the biggest absolute increase in mortality (1,214 more deaths than expected based on 1991) (Table 5).

'Other heart disease' showed the biggest absolute increases in mortality in all but two years between 1991 and 2005. The increase in liver disease deaths brought forward was, however, continuous. In 1993 93 deaths were brought forward; by 2005 the number of deaths brought forward had increased to 581 (Figure 3B).

Figure 3A **Men: Trends in liver disease mortality, 1991–2005**

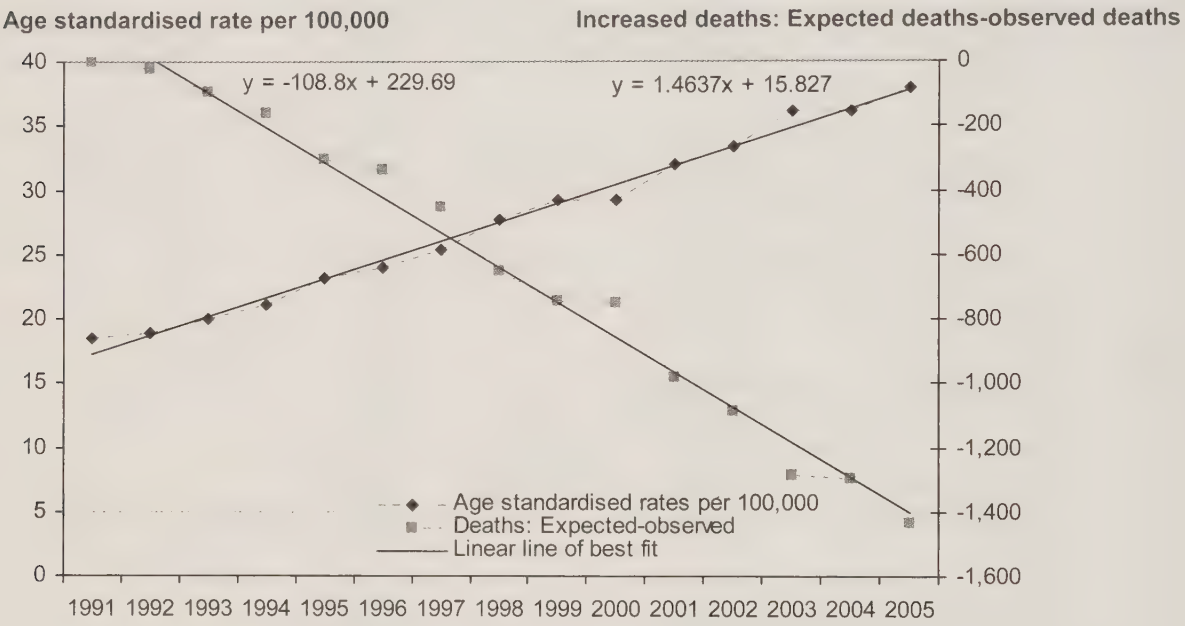
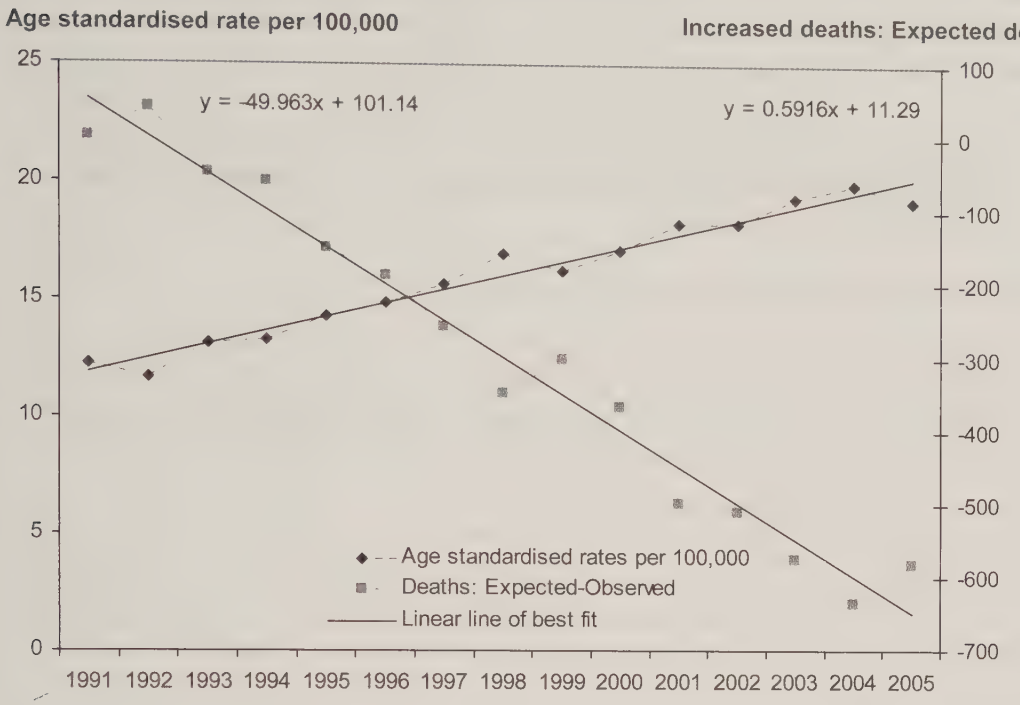


Figure 3B Women: Trends in liver disease mortality, 1991–2005



Relative increases in mortality

Men

Some diseases saw an increase in mortality rates in 2005 compared to 1991 (Table 5). The biggest relative increase in the age-standardised rate, 104 per cent, was in liver disease (Table 5). The rate for liver disease rose from 19 per 100,000 men in 1991 to 38 per 100,000 in 2005 that is from the 22nd most common cause of mortality to the 13th most common (out of 28 causes analysed). The other causes which saw a relative increase in age-standardised rates were skin cancer, oesophagus cancer, 'other heart disease' and accidents.

There was some annual fluctuation in the cause of death showing the biggest increase in rates between 1991 and 2005. However, rate increases in liver disease were consistently the highest from 2001 onwards (Figure 3A).

In 2005, disease of the liver was one of the biggest (either the biggest or second biggest) cause of relative increase in rates in all age groups.

Women

Among women in 2005, six causes of mortality showed a relative increase in rates compared to 1991. As in men, the biggest relative increase was in liver disease (56 per cent increase in the age-standardised rate) (Table 5). The age-standardised rate of mortality for liver disease increased from 12.3 per 100,000 women in 1991 to 19.2 per 100,000 in 2005 – from the 21st most common cause of mortality in 1991 to 15th in 2005 (out of 29 causes included within this analysis) (Figure 3).The other causes showing an increase in mortality rates were skin cancer, other heart disease, pancreatic cancer, COPD and accidents.

As in men there was annual fluctuation in the rank position of the cause showing the highest relative increase. Liver disease showed highest relative increases in all of the last five years (2000–2005). 'Other heart disease' was the most common cause of death showing a relative increase in rates in four of the 14 years studied.

Analysis of the relative changes in age-specific mortality rates in women in 2005 found liver disease to be the cause of the biggest relative increase in all age groups other than the 85 and over group, where it was accidents.

Combining relative and absolute increases in mortality

Men

Graphical comparison of absolute and relative mortality increases showed the greatest combined increases were in liver disease, skin cancer, oesophagus cancer, other heart disease and accidents (Figure 2A).

Women

As in men, combining absolute and relative mortality showed liver disease as the cause resulting in the biggest combined increases in mortality, followed by other heart disease; COPD; skin cancer and pancreas cancer (Figure 2B).

Discussion

Key findings

Mortality rates in men and women aged 50 and over declined substantially (30 per cent and 20 per cent respectively) between 1991 and 2005. Analysis by cause of death showed in absolute terms the greatest number of deaths postponed were due to falls in IHD and CVD mortality in men (58,059 deaths) and women (48,950 deaths). The greatest decline in relative mortality was in influenza, where age-standardised rates declined by 89 per cent in men and 93 per cent in women in 2005 compared to 1991. However the proportion of all deaths due to influenza was extremely small throughout this period so these causes did not have a major impact on the decline in the total burden of disease. Over the same period, there were increases in mortality rates for some conditions, liver disease in particular.

The analysis demonstrates the value of assessing both absolute and relative mortality change. For example, for pneumonia in women, a large absolute decline had a great impact on overall mortality, even though the relative decline was small. In contrast, for influenza, a large relative decline in mortality had little impact on the overall decline in mortality because influenza is a rare cause of death.

Explanation of findings

This study found a substantial decline in IHD, both in absolute and relative terms. The evidence on the drivers of decline in cardiovascular mortality suggest the majority of the decline in IHD mortality is related to corresponding declines in modifiable lifestyle and dietary risk factors such as high cholesterol levels, smoking and high blood pressure.[9,12,13] In England there has been a considerable policy drive to reduce IHD, backed by targets aimed at reducing premature IHD

mortality. A target of reducing circulatory disease mortality by 40 per cent in those under 75 and reducing the absolute gap between the fifth of areas with the worse health and deprivation by 40 per cent compared to the population as whole by 2010 were published in *Saving Lives: Our healthier nation*.[14] Although there has been success in meeting the target for reduction in IHD mortality rates in the population as a whole, the inequalities target has not been met. The fact that the gap between the most deprived fifth of areas and England as a whole has increased emphasises that although there may have been improvements in overall IHD mortality overall, there are substantial differences in the scale and pace of improvements across socio-economic groups.[15]

While this study found there were substantial falls in the expected number of deaths from lung cancer and COPD among men, deaths from COPD increased among women. Gender differences in diseases strongly related to smoking may reflect historical differences between men and women in take-up and quit rates and life time exposure. Men started smoking early in the 20th century, whereas smoking prevalence increased among women later in the century and the peak in their consumption occurred later than in men.[4] In addition women tended to start smoking at an older age, to smoke less and may be slower to give up.[16,17] These factors are likely to result in a peak in smoking-related mortality occurring later in women than in men.

At the population level, the lag times between a change in smoking prevalence and a change in mortality are still unknown and are likely to differ between diseases. For instance, for lung cancer the lag time between peak smoking in the population and the peak in lung cancer mortality is thought to be around 40 years. However the evidence suggests a shorter lag time between peak prevalence in smoking and vascular disease, that is the peak in vascular disease attributable to smoking occurs earlier in the smoking epidemic.[18,19] The evidence quantifying the lag time between smoking prevalence and attributable cause-specific mortality is sparse and inconclusive and would benefit from further research.

This study found stomach cancer was one of the causes showing a large absolute decline in men. These improvements are not thought to be related to either better diet or improved survival among those with diagnosed stomach cancer. One of the factors suggested in adult mortality from stomach cancer is early life influences. For instance there is a link between stomach cancer in adulthood and infection with *Helicobacter pylori* in childhood. There have been declines in this infection in each cohort since the 1920s and this may be associated with subsequent declines in stomach cancer mortality. Recent improvements could also reflect improvements in cancer care, such as earlier diagnosis and better compliance with treatment guidelines.[4,20]

Colon cancer was also found to have large declines in absolute mortality; in total absolute declines in 2005 were equivalent to 3,498 deaths being postponed. It is possible that earlier diagnosis, improvements in treatment and reduction in post-operative mortality have contributed in part to the decline. [21,22]

Absolute and relative mortality from liver disease in men and women increased over time. A predominant factor in the increase seen is likely to be due to the increase in alcohol consumption.[23] Changing patterns of consumption, for example binge drinking, the type of alcohol consumed and the change in drinking habits at younger age may all play a role in the increased mortality seen. [24] This is supported by the fact that in 1991 around 37 per cent of all liver disease

mortality in those aged 50 and above was from alcoholic liver disease, while in 2005 this accounted for 55 per cent of all liver disease.

In women breast cancer mortality saw one of the largest absolute declines after IHD. The reasons for this decline are multifaceted but the evidence suggests the reduced mortality is the result of improvements in both diagnosis and treatment, such as the use of tamoxifen. Breast screening has also played a role in the declines seen, although to a lesser extent.[4,25]

In most years influenza was found to have the largest relative decline in mortality. However during the period under study there were no serious influenza epidemics.[4,26] Influenza is also thought to be frequently under diagnosed, and often, although not the underlying cause of mortality, will be a contributing factor in other causes of mortality. Changing diagnostic fashion could also have an effect on influenza mortality trends.[4] Of those who die as a result of influenza, microbiological confirmation will only be available in a very small proportion. An influenza epidemic could result in increases in mortality from associated causes, for example pneumonia; the implication of this could be both absolute and relative increases in a range of causes of mortality.

Limitations

Analysis of mortality change in this study used a single baseline year (1991); all subsequent years were then compared against this baseline. This assumes that point estimates of mortality by cause of death in 1991 were not unusually high or low compared to what would be expected given long-term underlying trends. One approach to overcoming this could have been to use three-year rolling averages – for instance using the baseline of 1991–1993, as this could have smoothed out any random annual fluctuations. As analysis was conducted at the national level, there were a large number of observed deaths for each cause and this reduced the potential of random fluctuations from year-to-year. Comparison with the mortality rates in successive years did not seem to suggest 1991 was anomalous. Subsequent analysis will look at temporal trends in cause-specific mortality and the annual contribution to overall mortality declines.

The analysis covered the period from 1991 to 2005 although the accelerated declines in mortality in those aged 50 and over began in the 1970s. We limited our analysis to the more recent period to ensure consistency in analysis (communication with ONS). If the analysis had begun in 1970 it is possible that the trends identified could be the result of coding changes (that is purely artefactual) as opposed to real changes.

Two of the major causes of mortality identified in our study were IHD and stroke. A previous study examining mortality throughout the 20th century found declines in mortality from stroke and IHD occurred since the 1970s. Therefore there is an ongoing trend in mortality decline, which started in the 1970s and has continued into the period covered in our analysis.[4]

When assessing changes in causes of mortality over time it is important to recognise that the changes observed can be the result of a range of factors. For instance variation in the incidence of the disease, detection or description of diseases, case-fatality of cause-specific disease, statistical and classification artefacts can all effect temporal trends in mortality. As a consequence any analysis over time should consider the impact of the changing understanding of diseases and coding of causes of death.[4]

The start and end point of any trend analysis will influence the causes of mortality that are identified as major contributors to the declines found within the period. For instance had analysis started at the beginning of the 20th century, the major contributors to overall decline would have been infectious diseases. If the period of analysis had started in the middle of the 20th century and ended in 2000, it is possible that the peak in lung cancer deaths in men that occurred within this period (1970s) may have been overlooked.[4]

This analysis used 1991 as the baseline year. However as there is not a method of adjusting 1991 data to be entirely comparable to either later deaths coded to ICD10 or those coded to ICD9 using the automated system, it is possible that changes identified are not fully reflective of actual changes in cause-specific mortality, that is they could be artefact as a result of coding changes. To examine this, analysis was rerun using 1993 as a baseline year. Although some differences were identified, the key findings remained consistent. Using both baseline years IHD and CVD remained the biggest causes of absolute decline and influenza and IHD the biggest causes of relative decline in both men and women. Liver disease also remained an important cause of mortality increase. Assessment of the changes using different baselines showed there was greater variation in the absolute rankings, while the relative rankings remained more constant.

'Other heart disease', pneumonia and diabetes were areas where differences were identified. Mortality from 'other heart disease' went from one of the causes showing an increase to one showing a decrease. In men, pneumonia went from the fifth biggest cause of absolute decline to the tenth biggest, however in women it remained one of the top five causes of absolute decline. In relative terms the importance of diabetes as a cause of relative mortality decline reduced. This is likely to reflect coding changes, with deaths coded to diabetes in 1991 and 1992 coded to an alternative cause in subsequent years.

The analysis performed was cross-sectional. When assessing trends in mortality decline it is important to consider the impact of cohort effects, as the trends found may differ from those found using a cross sectional approach to analysis. For instance there is evidence of a cohort effect, with those born in or around 1930 having experienced consistently higher amounts of improvements in mortality when compared to earlier or later cohorts.[2,4]

Conclusions and implications

This study analysed cause-specific mortality to 2005 and updates previous work examining mortality trends up to the end of the 20th century.[4] Trends of declining rates in IHD and CVD mortality have continued into the 21st century, however both diseases continue to remain the biggest killers in England and are projected to remain so. Recently published analysis of future mortality by the World Health Organisation suggest the three major causes of mortality in 2030 will be IHD, CVD and cancer of the trachea, bronchus and lung – accounting for around 30 per cent of mortality in high income countries.[27] Consequently, although there have been substantial declines in mortality from these causes, they will continue to place a large burden on the population of England. With an ageing population and a rapid decline in premature mortality, it is likely that mortality from IHD will be postponed to later life.[12,13] This will have implications for health and social care service provision.

The increases in liver disease mortality highlight the importance of tackling alcohol misuse as a public health priority, as acknowledged in recent national policy.[28,29] Much emphasis in current policy has been put on antisocial behaviour and the impact of drinking on children and young adults. However, as this study shows, liver disease is a problem also affecting those aged 50 and over and this group should not be forgotten.

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Vital Statistics: Population and Health Reference Tables

Notes to Tables

Time series
For most tables, years start at 1971 and then continue at five-year intervals until 1991. Individual years are shown thereafter.

United Kingdom
The United Kingdom comprises England, Wales, Scotland and Northern Ireland. The Channel Islands and the Isle of Man are not part of the United Kingdom.

Population
The estimated and projected resident population of an area includes all people who usually live there, whatever their nationality. Members of HM and US Armed Forces in the United Kingdom are included on a residential basis wherever possible. HM Forces stationed outside the United Kingdom are not included. Students are taken to be resident at their term time addresses.
Further information can be found at: www.statistics.gov.uk/popest

Live births
For England and Wales, figures relate to the number of births occurring in a period; for Scotland and Northern Ireland, figures relate to births registered in a period. By law, births must be registered within 42 days in England and Wales, within 21 days in Scotland, and within 42 days in Northern Ireland. In England and Wales, where a birth is registered later than the legal time period, and too late to be included in the count for the year of occurrence, it will be included in the count for the following year.

The age-specific fertility rate (ASFR), is the number of births per 1,000 women in the stated age group. The total fertility rate (TFR), is the average number of children that a group of women would have if they experienced the ASFRs for a particular year throughout their childbearing lives. The TFR reflects the current intensity of childbearing and the rate at which the population replaces itself. The TFR is a synthetic measure since ASFRs do not normally remain stable during the childbearing life span of a woman.

Perinatal mortality
In October 1992 the legal definition of a stillbirth was changed, from a baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.

Period expectation of life
The life tables on which these expectations are based use death rates for the given period to describe mortality levels for each year. Each individual year shown is based on a three-year period, so that for instance 1986 represents 1985–87. Further information can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=14459

Deaths
Figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring each year from 1993 and 2005. Figures for 2006, 2007, 2008 and provisional death figures for 2009 relate to registrations. All infant, neonatal and perinatal mortality data represents registrations. All figures for Scotland and Northern Ireland relate to the number of deaths registered in each year.

Coding cause of death
Between 1 January 1984 and 31 December 1992, ONS applied its own interpretation of the International Classification of Diseases (ICD) Section Rule 3 in the coding of deaths where terminal events and other 'modes of dying' such as cardiac arrest, cardiac failure, certain thrombembolic disorders, and unspecified pneumonia and bronchopneumonia, were stated by the certifier to be the underlying cause of death and other major pathology appeared on the certificate. In these cases ONS Rule 3 allowed the terminal event to be considered a direct sequel to the major pathology and that primary condition was selected as the underlying cause of death. Prior to 1984 and between 1 January 1993 and 31 December 2000, such certificates were coded to the terminal event. ONS also introduced automated coding of cause of death in 1993, which may also affect comparisons of deaths by cause from 1993. Further details can be found in the annual volumes *Mortality statistics: Cause 1984*, Series DH2 no. 11, and *Mortality statistics: Cause 1993 (revised) and 1994*, Series DH2 no. 21.

From 1 January 2001, under ICD–10, Rule 3 was again changed – for details see the article in *Health Statistics Quarterly* 13. This resulted in a fall in the death rates from respiratory diseases, notably pneumonia, and consequently slight rises in the rates for other causes (for example strokes). For details of the major changes between ICD–9 and ICD–10, see the articles in *Health Statistics Quarterly* 08, 13 and 14.

Age-standardised mortality
Directly age-standardised rates make allowances for changes in the age structure of the population. The age-standardised rate for a particular condition is that which would have occurred if the observed age-specific rates for the condition had applied in a given standard population. Table 2.2 uses the European Standard Population. This is a hypothetical population standard which is the same for both males and females allowing standardised rates to be compared for each sex, and between males and females.

Abortions
Figures relate to numbers occurring in a period.

International Migration
The UN recommends the following definition of an international long-term migrant:
An *international long-term migrant* is defined as a person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence.
Long-Term International Migration estimates are compiled from several main sources of migration data:

The richest source of information on international migrants comes from the International Passenger Survey (IPS), which is a sample survey of passengers arriving at, and departing from, the main United Kingdom air and sea ports and Channel Tunnel. This survey provides migration estimates based on respondents' *intended* length of stay in the UK or abroad and excludes most persons seeking asylum and some dependants of such asylum seekers.

Two adjustments are made to account for people who do not realise their intended length of stay on arrival. First, visitor data from the IPS are used to estimate 'visitor switchers': those people who initially come to or leave the UK for a short period but subsequently stay for a year or longer. Second, people who intend to
be migrants, but who in reality stay in the UK or abroad for less than a year ('migrant switchers'), are estimated from IPS migrant data.

Home Office data on asylum seekers and their dependants.

For 2008, data from the Northern Ireland Statistics and Research Agency is used to estimate international migration to and from Northern Ireland.

For 1991-2007, estimates of migration between the UK and the Irish Republic are estimated using information from the Irish Quarterly National Household Survey and the National Health Service Central Register.

Further information on long-term migration estimates can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=507

Internal Migration
Figures in Table 8.1 are based on the movement of NHS doctors' patients between former Health Authorities (HAs) in England and Wales, and Area Health Boards in Scotland and Northern Ireland. Yearly and quarterly figures have been adjusted to take account of differences in recorded cross-border flows between England and Wales, Scotland and Northern Ireland.

Estimates of internal migration are based on the date of acceptance of the new patient by the HA and a one month time lag is assumed. It has been established that NHSCR data under-report the migration of males aged between 16 and 36 (See http://www.statistics.gov.uk/downloads/theme_population/Revising_Internal_Migration_Estimates.pdf.)
Work is underway within the ONS to produce a student adjustment that will be applied to LA level migration tables. This Region and country level table will be unaffected by the planned revisions.

Marriages and divorces
Marriages are tabulated according to date of solemnisation. Divorces are tabulated according to date of decree absolute. The term 'divorces' includes decrees of nullity. The fact that a marriage or divorce has taken place in England, Wales, Scotland or Northern Ireland does not mean either of the parties is resident there.

Civil Partnerships
The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK, the first day couples could give notice of their intention to form a civil partnership. The first day that couples could formally form a partnership was 19 December 2005 in Northern Ireland, 20 December 2005 in Scotland and 21 December 2005 in England and Wales. (18 civil partnerships were formed under special arrangements before these dates. These are included in the figures for England and Wales).

Civil partnerships are tabulated according to date of formation and area of occurrence. The fact that a civil partnership has taken place in England, Wales, Scotland or Northern Ireland does not necessarily mean either of the parties is resident there.

EU Enlargement
The coverage of European countries in Table 1.1 has been updated to reflect the enlargement of the EU to 27 member countries (EU27). On 1 May 2004, 10 new member countries were added: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. On 1 January 2007 a further 2 countries were added: Bulgaria and Romania.

Sources
Figures for Scotland and Northern Ireland have been provided by the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency respectively. The International Passenger Survey (see International migration) is conducted by the Surveys and Administrative Sources Directorate of ONS.

Calculating quarterly rates
Quarterly rates are calculated using seasonal adjustments which take into account the number of days in the month/year. The denominators used for calculating quarterly rates have been produced from mid-year population estimates and projections.

Rounding
All figures are rounded independently; constituent parts may not add to totals. Generally numbers and rates per 1,000 population are rounded to one decimal place (e.g. 123.4); where appropriate, for small figures (below 10.0), two decimal places are given (e.g. 7.62). Figures which are provisional or estimated are given in less detail (e.g. 123 or 7.6 respectively) if their reliability does not justify giving the standard amount of detail. Where figures need to be treated with particular caution, an explanation is given as a footnote.

Latest figures
Figures for the latest quarters and years may be provisional, these will be updated in final figures when data is available. Where figures are not yet available, cells are left blank.

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Table 1.1 Population and vital rates: international

Selected Countries

Numbers (thousands)/Rates per thousand

Year	United Kingdom	Austria	Belgium	Bulgaria	Cyprus[1]	Czech Republic	Denmark	Estonia	Finland	France	Germany[2]	Greece[3]	Hungary
Population (thousands)													
1971	55,780	7,501	9,673	8,540	610	9,810	4,963	1,369	4,612	51,251	78,313	8,831	10,370
1976	56,221	7,566	9,818	8,760	498	10,094	5,073	1,435	4,726	52,909	78,337	9,167	10,590
1981	56,344	7,569	9,859	8,891	515	10,293	5,121	1,482	4,800	54,182	78,408	9,729	10,712
1986	56,619	7,588	9,862	8,958	545	10,340	5,120	1,534	4,918	55,547	77,720	9,967	10,631
1991	57,338	7,813	9,979	8,982	587	10,309	5,154	1,566	5,014	57,055	79,984	10,247	10,346
1996	58,095	7,959	10,137	8,363	661[12]	10,315	5,262	1,416	5,125	58,026	81,896	10,709	10,193
2001	59,000	8,021	10,263	8,149	698[12]	10,267	5,349	1,367	5,181	60,964	82,260	10,931	10,200
2002	59,218	8,065	10,310	7,891	706[12]	10,206	5,368	1,361	5,195	61,399	82,440	10,969	10,175
2003	59,440	8,102	10,356	7,846	715[12]	10,203	5,384	1,356	5,206	61,832	82,537	11,006	10,142
2004	59,702	8,140	10,396	7,801	730[12]	10,211	5,398	1,351	5,220	62,252	82,532	11,041	10,117
2005	60,042	8,207	10,446	7,761	749[12]	10,221	5,411	1,348	5,237	62,638	82,501	11,083	10,098
2006	60,413	8,266	10,511	7,719	766[12]	10,251	5,427	1,345	5,256	62,999	82,438	11,125	10,077
2007	60,781	8,299	10,585	7,679	779[12]	10,287	5,447	1,342	5,277	63,392	82,315	11,171	10,066
2008	61,179	8,319	10,667	7,640	789[12]	10,381	5,476	1,341	5,300	63,983	82,218	11,214	10,045
2009	..	8,355	10,750[P]	7,607	797[12,P]	10,468	5,511	1,340	5,326	64,351[P]	82,002[P]	11,260[P]	10,031[P]
Population changes (per 1,000 per annum)													
1971-76	1.6	1.7	3.0	5.2	–36.7	5.8	4.4	9.6	4.9	6.5	0.1	7.6	4.2
1976-81	0.4	0.1	0.8	3.0	6.8	3.9	1.9	6.6	3.1	4.8	0.2	12.3	2.3
1981-86	1.0	0.5	0.1	1.5	11.7	0.9	0.0	7.0	4.9	5.0	–1.8	4.9	–1.5
1986-91	2.5	5.9	2.4	0.5	15.4	–0.6	1.3	4.2	3.9	5.4	5.8	5.6	–5.4
1991-96	2.6	3.7	3.6	–13.8	25.2	0.1	4.2	–19.2	4.4	3.4	4.8	9.0	–3.0
1996-01	3.1	1.6	2.1	–5.1	11.2	–0.9	3.3	–6.9	2.2	10.1	0.9	4.1	0.1
2001-02	3.7	5.5	4.6	–31.7	11.5	–5.9	3.6	–4.4	2.7	7.1	2.2	3.5	–2.5
2002-03	3.7	4.6	4.5	–5.7	12.7	–0.3	3.0	–3.7	2.1	7.1	1.2	3.4	–3.2
2003-04	4.4	4.7	3.9	–5.7	21.0	0.8	2.6	–3.7	2.7	6.8	–0.1	3.2	–2.5
2004-05	5.7	8.2	4.8	–5.1	26.0	1.0	2.4	–2.2	3.3	6.2	–0.4	3.8	–1.9
2005-06	6.2	7.2	6.2	–5.4	22.7	2.9	3.0	–2.2	3.6	5.8	–0.8	3.8	–2.1
2006-07	6.1	2.4	7.0	–5.2	17.0	3.5	3.7	–2.2	4.0	6.2	–1.5	4.1	–1.1
2007-08	6.5	2.4	7.7	–5.1	12.8	9.1	5.3	–0.7	4.4	9.3	–1.2	3.8	–2.1
2008-09	..	4.3	8.2	–4.3	10.1	8.4	6.4	–0.7	4.9	5.8	–2.6	4.1	–1.4
Live birth rate (per 1,000 population per annum)													
1971-75	14.1	13.3	13.4	13.2	17.7	17.8	14.6	15.4	13.1	16.0	10.5	15.8	16.1
1976-80	12.5	11.5	12.5	15.1	19.0	17.1	12.0	15.0	13.6	14.1	10.5	15.6	15.8
1981-85	12.9	12.0	12.0	13.7	20.2	13.5	10.2	15.6	13.4	14.2	10.7	13.3	12.3
1986-90	13.7	11.6	12.1	12.7	18.8	12.7	11.5	15.5	12.7	13.8	9.8	10.6	11.8
1991-95	13.2	11.8	12.0	9.8	16.9	11.1	13.1	10.7	12.9	12.7	10.9	9.9	11.7
1996-00	12.0	10.2	11.2	8.3	13.2	8.8	12.6	8.9	11.3	12.7	9.6	10.2	9.8
2001	11.3	9.4	11.1	8.6	11.6	8.9	12.2	9.3	10.8	13.0	8.9	9.3	9.5
2002	11.3	9.7	10.8	8.5	11.1	9.6	11.9	9.6	10.7	12.7	8.7	9.5	9.5
2003	11.7	9.5	10.8	8.6	11.2	9.2	12.0	9.6	10.9	12.6	8.6	9.5	9.3
2004	12.0	9.7	11.1	9.0	11.3	9.6	12.0	10.4	11.0	12.7	8.6	9.6	9.4
2005	12.0	9.5	11.3	9.2	10.9	10.0	11.9	10.7	11.0	12.7	8.3	9.7	9.7
2006	12.4	9.4	11.5	9.6	11.3	10.3	12.0	11.1	11.2	13.0	8.2	10.0	9.9
2007	12.7	9.2	11.4	9.8	10.9	11.1	11.7	11.8	11.1	12.7	8.3	10.0	9.7
2008	12.9	9.2	11.7	10.2	11.6	11.5	11.8	11.1	11.2	12.8	8.2	10.3	9.9
Death rate (per 1,000 population per annum)													
1971-75	11.8	12.6	12.1	9.8	9.9	12.4	10.1	11.1	9.5	10.7	12.3	8.6	11.9
1976-80	11.9	12.3	11.6	12.9	10.4	12.5	10.5	12.1	9.3	10.2	12.2	8.8	12.9
1981-85	11.7	12.0	11.4	11.3	10.0	12.8	11.1	12.3	9.3	10.1	12.0	9.0	13.7
1986-90	11.4	11.1	10.8	11.9	10.2	12.4	11.5	11.9	9.8	9.5	11.6	9.3	13.5
1991-95	11.1	10.4	10.4	12.9	9.0	11.6	11.9	13.9	9.8	9.1	10.8	9.5	14.3
1996-00	10.6	9.7	10.3	14.0	7.7	10.8	11.2	13.1	9.6	9.2	10.4	9.7	13.9
2001	10.2	9.3	10.1	14.2	6.9	10.5	10.9	13.6	9.4	8.9	10.1	9.4	13.0
2002	10.2	9.4	10.2	14.3	7.3	10.6	10.9	13.5	9.5	8.9	10.2	9.5	13.1
2003	10.3	9.5	10.4	14.3	7.2	10.9	10.7	13.4	9.4	9.2	10.3	9.6	13.4
2004	9.7	9.1	9.8	14.2	7.1	10.5	10.3	13.1	9.1	8.4	9.9	9.5	13.1
2005	9.7	9.1	9.8	14.6	7.2	10.5	10.1	12.9	9.1	8.6	10.1	9.5	13.5
2006	9.4	9.0	9.6	14.7	6.7	10.2	10.2	12.9	9.1	8.4	10.0	9.5	13.1
2007	9.4	9.0	9.5	14.8	6.9	10.1	10.2	13.0	9.3	8.4	10.1	9.8	13.2
2008	9.4	9.0	9.5	14.5	6.4	10.1	9.9	12.5	9.2	8.4	10.3	9.3	13.0

Note: Estimated population (as at 1 January) for European countries – *see Eurostat* Website.
Estimated population (mid-year) for all other countries – see the United Nations Monthly Bulletin of Statistics and the united Nations Demographic yearbook.
Live birth and death rates – see the United Nations Monthly Bulletin of *Statistics and the UnitedNations Demographic Yearbook (latest update October 2009).*

1 Republic of Cyprus – Data refer to Government controlled areas.
2 Including former GDR throughout.
3 Greece – Mid-year population excludes armed forces stationed outside the country but includes alien forces stationed in the area.
4 Malta – including work and resident permit holders and foreigners residing in Malta.
5 Poland – excluding civilian aliens within the country but including civilian nationals temporarily outside the country.
6 Portugal – including the Azores and Madeira islands.
7 Spain – including the Balearic and Canary Islands.
8 For 1971 the European Union consisted of the 6 original member countries. This has since been expanded to include: 9 countries (1976-EU15); 10 countrie (2004-EU25); 2 countries (2007-EU27). In this table, all totals include the EU27.
9 Including the Indian held part of Jammu and Kashmir, the final status of which has not yet been determined.
10 Japan – excluding diplomatic personnel outside the country and foreign military and civilian personnel and their dependants stationed in the area.
11 USA – excluding armed forces overseas and civilian citizens absent from the country for extended periods.
12 Indicates population estimates of uncertain reliability.
13 Data refer to 15 April.
14 Figures were updated taking into account the results of the 2002 All-Russian population census.
15 Mid-year estimates have been adjusted for under-enumeration.
16 For statistical purposes the data for China do not include those for the Hong Kong SAR, Macao SAR and Taiwan province of China. Data for the period 1996 to 2000 have been adjusted on the basis of the Population Census of 2000. Data from 2001 to 2007 have been estimated on the basis of the annual national sample surveys of Population Changes.
17 Rate is for 1990-1995.

Table 1.1 continued Population and vital rates: international

Selected Countries

Numbers (thousands)/Rates per thousand

Year	Irish Republic	Italy	Latvia	Lithuania	Luxembourg	Malta[4]	Netherlands	Poland[5]	Portugal[6]	Romania	Slovakia	Slovenia	Spain[7]	Sweden
Population (thousands)														
1971	2,992	54,073	2,366	3,160	342	330	13,194	32,800	8,644	20,470	4,540	1,732	34,216	8,098
1976	3,238	55,718	2,465	3,315	361	330	13,774	34,360	9,356	21,450	4,764	1,809	36,118	8,222
1981	3,443	56,502	2,515	3,422	365	322	14,247	35,902	9,851	22,353	4,996	1,910	37,741	8,320
1986	3,543	56,596	2,588	3,560	368	344	14,572	37,456	10,011	22,823	5,179	1,975	38,536	8,370
1991	3,526	56,751	2,662	3,742	387	358	15,070	38,245	9,871	23,185	5,283	2,002	38,920	8,617
1996	3,626[13]	56,860	2,457	3,602	414	380	15,530	38,618	10,058	22,608	5,374	1,991	39,479	8,841
2001	3,833[13]	56,960	2,364	3,487	439	391	15,987	38,254	10,257	22,430	5,379	1,990	40,477	8,883
2002	3,900[13]	56,994	2,346	3,476	444	395	16,105	38,242	10,329	21,833	5,379	1,994	40,964	8,909
2003	3,964[13]	57,321	2,331	3,463	448	397	16,193	38,219	10,407	21,773	5,379	1,995	41,664	8,941
2004	4,028[13]	57,888	2,319	3,446	455	400	16,258	38,191	10,475	21,711	5,380	1,996	42,345	8,976
2005	4,109[13]	58,462	2,306	3,425	461	403	16,306	38,174	10,529	21,659	5,385	1,998	43,038	9,011
2006	4,209[13]	58,752	2,295	3,403	469	405	16,334	38,157	10,570	21,610	5,389	2,003	43,758	9,048
2007	4,313[13]	59,131	2,281	3,385	476	408	16,358	38,125	10,599	21,565	5,394	2,010	44,475	9,113
2008	4,401[13]	59,619	2,271	3,366	484	410	16,405	38,116	10,618	21,529	5,401	2,010	45,283	9,183
2009	4,450[13]	60,045[P]	2,261	3,350	494	414	16,487[P]	38,136	10,620[P]	21,499	5,412	2,032	45,828	9,256
Population changes (per 1,000 per annum)														
1971-76	16.4	6.1	8.4	9.8	10.7	0.0	8.8	9.5	16.5	9.6	9.9	8.9	11.1	3.1
1976-81	12.7	2.8	4.1	6.5	2.5	–4.8	6.9	9.0	10.6	8.4	9.7	11.2	9.0	2.4
1981-86	5.8	0.3	5.8	8.1	1.8	13.7	4.6	8.7	3.2	4.2	7.3	6.8	4.2	1.2
1986-91	–1.0	0.5	5.7	10.2	10.2	8.1	6.8	4.2	–2.8	3.2	4.0	2.7	2.0	5.9
1991-96	5.7	0.4	–15.4	–7.5	13.9	12.3	6.1	2.0	3.8	–5.0	3.4	–1.1	2.9	5.2
1996-01	11.4	0.4	–7.6	–6.4	12.1	5.8	5.9	–1.9	4.0	–1.6	0.2	–0.1	5.1	1.0
2001-02	17.5	0.6	–7.6	–3.2	11.4	10.2	7.4	–0.3	7.0	–26.6	0.0	2.0	12.0	2.9
2002-03	16.4	5.7	–6.4	–3.7	9.0	5.1	5.5	–0.6	7.6	–2.7	0.0	0.5	17.1	3.6
2003-04	16.1	9.9	–5.1	–4.9	15.6	7.6	4.0	–0.7	6.5	–2.8	0.2	0.5	16.3	3.9
2004-05	20.1	9.9	–5.6	–6.1	13.2	7.5	3.0	–0.4	5.2	–2.4	0.9	1.0	16.4	3.9
2005-06	24.3	5.0	–4.8	–6.4	17.4	5.0	1.7	–0.4	3.9	–2.3	0.7	2.5	16.7	4.1
2006-07	24.7	6.5	–6.1	–5.3	14.9	7.4	1.5	–0.8	2.7	–2.1	0.9	3.5	16.4	7.2
2007-08	20.4	8.3	–4.4	–5.6	16.8	4.9	2.9	–0.2	2.0	–1.7	1.3	0.0	18.2	7.7
2008-09	11.1	7.1	–4.4	–4.8	20.7	9.8	5.0	0.5	0.7	–1.4	2.0	10.9	12.0	7.9
Live birth rate (per 1,000 population per annum)														
1971-75	22.2	16.0	14.4	16.4	11.6	17.5	14.9	17.9	20.3	19.3	19.7	16.4	19.2	13.5
1976-80	21.3	12.6	13.9	15.4	11.2	17.0	12.6	19.3	17.9	18.9	20.3	16.3	17.1	11.6
1981-85	19.2	10.6	15.2	16.0	11.6	15.3	12.2	19.0	14.5	15.6	18.0	14.2	12.8	11.3
1986-90	15.8	9.8	15.3	15.8	12.2	16.0	12.8	15.5	11.9	15.8	15.8	12.3	10.8	13.2
1991-95	14.0	9.6	10.8	13.1	13.3	14.0	12.8	12.9	11.4	11.1	13.3	10.0	9.8	13.3
1996-00	14.2	9.2	8.0	10.4	13.1	12.0	12.6	10.4	11.3	10.4	10.7	9.1	9.5	10.2
2001	15.1	9.2	8.3	9.1	12.4	10.1	12.6	9.6	11.0	9.8	9.5	8.8	10.0	10.3
2002	15.4	9.4	8.6	8.7	12.0	9.9	12.5	9.3	11.0	9.7	9.5	8.8	10.1	10.7
2003	15.5	9.4	9.0	8.9	11.7	10.2	12.3	9.2	10.8	9.8	9.6	8.7	10.5	11.1
2004	15.3	9.7	8.8	8.9	11.9	9.7	11.9	9.3	10.4	10.0	10.0	9.0	10.6	11.2
2005	14.9	9.5	9.3	8.9	11.5	9.6	11.5	9.5	10.4	10.2	10.1	9.1	10.7	11.2
2006	15.2	9.5	9.7	9.2	11.7	9.6	11.3	9.8	10.0	10.2	10.0	9.4	10.9	11.7
2007	16.3	9.5	10.2	9.6	11.4	9.5	11.1	10.2	9.7	10.0	10.1	9.8	11.0	11.7
2008	17.0	9.6	10.7	10.5	11.6	10.0	11.2	10.9	9.8	10.4	10.6	10.4	11.3	11.9
Death rate (per 1,000 population per annum)														
1971-75	11.0	9.8	11.6	9.0	12.2	9.0	8.3	8.4	11.0	9.4	9.4	10.0	8.5	10.5
1976-80	10.2	9.7	12.6	10.1	11.5	9.0	8.1	9.2	10.1	9.8	9.8	9.8	8.0	10.9
1981-85	9.4	9.5	12.8	10.6	11.2	8.2	8.3	9.6	9.6	10.3	10.1	10.3	7.7	11.0
1986-90	9.1	9.4	12.4	10.3	10.5	7.4	8.5	10.0	9.6	10.8	10.1	9.6	8.2	11.1
1991-95	8.8	9.7	14.8	12.0	9.8	7.6	8.8	10.2	10.4	11.5	9.9	9.7	8.7	10.9
1996-00	8.5	9.8	13.9	11.5	9.0	7.7	8.8	9.8	10.5	12.0	9.7	9.5	9.1	10.6
2001	7.9	9.6	14.0	11.6	8.4	7.6	8.7	9.5	10.2	11.6	9.7	9.3	8.9	10.5
2002	7.6	9.8	13.9	11.8	8.4	7.8	8.8	9.4	10.2	12.4	9.6	9.4	8.9	10.6
2003	7.3	10.2	13.9	11.9	9.0	7.9	8.7	9.6	10.4	12.3	9.7	9.7	9.2	10.4
2004	7.1	9.4	13.8	12.0	7.8	7.5	8.4	9.5	9.7	11.9	9.6	9.3	8.7	10.1
2005	6.8	9.7	14.2	12.8	7.8	7.8	8.4	9.7	10.2	12.1	9.9	9.4	8.9	10.2
2006	6.5	9.5	14.5	13.2	8.0	7.9	8.3	9.7	9.6	12.0	9.9	9.1	8.4	10.0
2007	6.5	9.7	14.5	13.5	8.1	7.6	8.1	9.9	9.8	11.7	10.0	9.2	8.6	10.0
2008	6.4	9.8	13.8	13.1	7.4	7.7	8.2	10.0	9.8	11.8	9.8	9.1	8.4	9.9

See notes on first page of table.

Table 1.1 continued Population and vital rates: international

Selected Countries

Numbers (thousands)/Rates per thousand

Year	EU[8]	Russian Federation	Australia	Canada	New Zealand	China	India[9]	Japan[10]	USA[11]	Year
Population (thousands)										
1971	438,728	130,934	13,067	22,026	2,899	852,290[16]	551,311	105,145	207,661	1971
1976	450,468	135,027	14,033	23,517	3,163	937,170[16]	617,248	113,094	218,035	1976
1981	459,807	139,225	14,923	24,900	3,195	1,008,460[16]	675,185	117,902	229,958	1981
1986	465,336	144,154	16,018	26,204	3,317	1,086,733[16]	767,199	121,672	240,680	1986
1991	473,094	148,245	17,284	28,031	3,477	1,170,100[16]	851,897	123,964	252,639	1991
1996	478,084	148,160[14]	18,311[15]	29,611[15]	3,732	1,217,550[16]	942,157[12]	125,757	269,394	1996
2001	483,782	145,976[14]	19,413[15]	31,021[15]	3,881	1,271,850[12,16]	1,034,931[12]	127,149	285,115	2001
2002	484,614	145,306[14]	19,651[15]	31,373[15]	3,949	1,280,400[12,16]	1,051,258[12]	127,445	287,888	2002
2003	486,617	144,566[14]	19,895[15]	31,676[15]	4,027	1,288,400[12,16]	1,068,065[12]	127,718	290,448	2003
2004	488,757	143,821[14]	20,127[15]	31,995[15]	4,088	1,296,075[12,16]	1,084,757[12]	127,761	293,192	2004
2005	491,024	143,114[14]	20,395[15]	32,312[15]	4,134	1,303,720[12,16]	1,101,328[12]	127,773	295,896	2005
2006	492,975	142,487[14]	20,698[15]	32,649[15]	4,185	1,311,020[12,16]	1,117,734[12]	127,756	298,755	2006
2007	495,090	142,115[14]	21,072[15]	32,976[15]	4,228	1,324,655[12,16]	1,134,023[12]	127,772	301,621	2007
2008	497,660	141,900[14,P]	21,430[15,P]	33,310[15,P]	4,270	..	1,150,000[12]	127,700	..	2008
2009	499,795	..	..	..	..	..	..	..	..	2009
Population changes (per 1,000 per annum)										
1971-76	5.4	6.3	14.8	13.5	18.2	19.9	23.9	15.1	10.0	1971-76
1976-81	4.1	6.2	12.7	11.8	2.0	15.2	18.8	8.5	10.9	1976-81
1981-86	2.4	7.1	14.7	10.5	7.6	15.5	27.3	6.4	9.3	1981-86
1986-91	3.3	5.7	15.8	13.9	9.6	15.3	22.1	3.8	9.9	1986-91
1991-96	2.1	–1.7	11.9	11.3	14.7	10.3	21.1	2.9	12.1	1991-96
1996-01	2.4	–2.9	12.0	9.5	7.9	8.9	19.7	2.2	11.7	1996-01
2001-02	1.7	–4.6	12.3	11.3	17.5	6.7	15.8	2.3	9.7	2001-02
2002-03	4.1	–5.1	12.4	9.7	19.8	6.2	16.0	2.1	8.9	2002-03
2003-04	4.4	–5.2	11.7	10.1	15.1	6.0	15.6	0.3	9.4	2003-04
2004-05	4.6	–4.9	13.4	9.9	11.3	5.9	15.3	0.1	9.2	2004-05
2005-06	4.0	–4.4	14.9	10.4	12.3	5.6	14.9	–0.1	9.7	2005-06
2006-07	4.3	–2.6	18.1	10.0	10.3	10.4	14.6	0.1	9.6	2006-07
2007-08	5.2	–1.5	17.0	10.1	9.9	..	14.1	–0.6	..	2007-08
2008-09	4.3	..	..	..	..	..	..	..	..	2008-09
Live birth rate (per 1,000 population per annum)										
1971-75	..	..	18.8	15.9	20.4	27.2	35.6	18.6	15.3	1971-75
1976-80	..	..	15.7	15.5	16.8	18.6	33.4	14.9	15.2	1976-80
1981-85	..	..	15.6	15.1	15.8	19.2	..	12.6	15.7	1981-85
1986-90	..	..	15.1	14.8	17.1	..	..	10.6	16.0	1986-90
1991-95	11.4	10.2	14.7	13.6	16.9	18.5[17]	..	9.7	13.1	1991-95
1996-00	10.6	8.6	13.4	11.4	14.9	..	..	9.5	14.3	1996-00
2001	10.4	9.0	12.7	10.8	14.4	13.4[16]	25.4	9.2	14.1	2001
2002	10.3	9.6	12.7	10.5	13.7	12.9[16]	25.0	9.2	14.0	2002
2003	10.3	10.2	12.6	10.6	13.9	12.4[16]	24.8	8.9	14.1	2003
2004	10.4	10.4	12.6	10.5	14.2	12.3[16]	24.1	8.8	14.0	2004
2005	10.4	10.2	12.7	10.6	14.0	12.4[16]	23.8	8.4	14.0	2005
2006	10.6	10.4	12.8	10.7	14.1	12.1[16]	23.5	8.7	14.3	2006
2007	10.6	11.3	13.5	..	15.1	12.0[16]	23.1	8.6	14.3	2007
2008	10.9	12.1	..	..	15.1	..	..	8.7	..	2008
Death rate (per 1,000 population per annum)										
1971-75	..	..	8.2	7.4	8.4	7.3	15.5	6.4	9.1	1971-75
1976-80	..	..	7.6	7.2	8.2	6.6	13.8	6.1	8.7	1976-80
1981-85	..	..	7.3	7.0	8.1	6.7	..	6.1	8.6	1981-85
1986-90	..	..	7.2	7.3	8.2	..	..	6.4	8.7	1986-90
1991-95	10.4	13.7	7.0	7.8	7.8	..	..	7.0	8.7	1991-95
1996-00	10.2	14.3	6.9	7.2	7.2	..	..	7.4	8.5	1996-00
2001	9.9	15.4	6.6	7.1	7.2	6.4[16]	8.4	7.6	8.5	2001
2002	9.9	16.1	6.8	7.1	7.1	6.4[16]	8.1	7.8	8.5	2002
2003	10.1	16.4	6.6	7.1	7.0	6.4[16]	8.0	8.0	8.4	2003
2004	9.7	16.0	6.6	7.1	7.0	6.4[16]	7.5	8.1	8.2	2004
2005	9.8	16.1	6.4	7.2	6.5	6.5[16]	7.6	8.6	..	2005
2006	..	15.2	6.4	7.1	6.7	6.8[16]	7.5	8.6	..	2006
2007	..	14.6	6.5	..	6.7	6.9[16]	7.4	8.8	..	2007
2008	9.7	14.6	..	..	6.8	..	..	9.1	..	2008

See notes on first page of table.

Table 1.2 Mid Year Population: national

Constituent countries of the United Kingdom — Numbers (thousands) and percentage age distribution

Mid-year	United Kingdom	Great Britain	England and Wales	England	Wales	Scotland	Northern Ireland
Estimates							
1971	55,928	54,388	49,152	46,412	2,740	5,236	1,540
1976	56,216	54,693	49,459	46,660	2,799	5,233	1,524
1981	56,357	54,815	49,634	46,821	2,813	5,180	1,543
1986	56,684	55,110	49,999	47,188	2,811	5,112	1,574
1991	57,439	55,831	50,748	47,875	2,873	5,083	1,607
1993	57,714	56,078	50,986	48,102	2,884	5,092	1,636
1994	57,862	56,218	51,116	48,229	2,887	5,102	1,644
1995	58,025	56,376	51,272	48,383	2,889	5,104	1,649
1996	58,164	56,503	51,410	48,519	2,891	5,092	1,662
1997	58,314	56,643	51,560	48,665	2,895	5,083	1,671
1998	58,475	56,797	51,720	48,821	2,900	5,077	1,678
1999	58,684	57,005	51,933	49,033	2,901	5,072	1,679
2000	58,886	57,203	52,140	49,233	2,907	5,063	1,683
2001	59,113	57,424	52,360	49,450	2,910	5,064	1,689
2002	59,323	57,627	52,572	49,652	2,920	5,055	1,697
2003	59,557	57,855	52,797	49,866	2,931	5,057	1,703
2004	59,846	58,136	53,057	50,111	2,946	5,078	1,710
2005	60,238	58,514	53,419	50,466	2,954	5,095	1,724
2006	60,587	58,846	53,729	50,763	2,966	5,117	1,742
2007	60,975	59,216	54,072	51,092	2,980	5,144	1,759
2008	61,383	59,608	54,440	51,446	2,993	5,169	1,775
2008 by age group **(percentages)**							
0–4	*6.0*	*6.0*	*6.1*	*6.1*	*5.6*	*5.5*	*6.7*
5–15	*12.7*	*12.7*	*12.7*	*12.7*	*12.9*	*12.2*	*14.7*
16–44	*39.9*	*39.9*	*40.0*	*40.1*	*37.3*	*39.0*	*41.0*
45–64M/59F	*22.1*	*22.1*	*22.0*	*22.0*	*22.9*	*23.6*	*20.9*
65M/60F–74	*11.4*	*11.5*	*11.4*	*11.3*	*12.8*	*12.1*	*10.3*
75 and over	*7.8*	*7.8*	*7.8*	*7.8*	*8.6*	*7.6*	*6.4*
Projections[1]							
2011	62,649	60,834	55,601	52,577	3,024	5,233	1,815
2016	64,773	62,900	57,576	54,472	3,104	5,324	1,874
2021	66,958	65,031	59,620	56,433	3,187	5,411	1,927
2026	69,051	67,080	61,597	58,334	3,263	5,483	1,971
2031	70,933	68,929	63,397	60,071	3,326	5,532	2,005
2031 by age group **(percentages)**							
0–4	*5.6*	*5.6*	*5.6*	*5.7*	*5.2*	*4.9*	*5.6*
5–15	*12.4*	*12.4*	*12.5*	*12.5*	*12.1*	*11.5*	*13.3*
16–44	*36.4*	*36.4*	*36.5*	*36.7*	*34.2*	*34.6*	*35.4*
45–64[2]	*23.3*	*23.3*	*23.2*	*23.2*	*23.1*	*24.3*	*24.1*
65–74[2]	*10.6*	*10.6*	*10.5*	*10.4*	*11.7*	*12.2*	*10.7*
75 and over	*11.7*	*11.7*	*11.7*	*11.6*	*13.6*	*12.5*	*10.9*

1 National projections based on mid-2008 population estimates.

2 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes. Between 2024 and 2026, state pension age will increase from 65 years to 66 years for both men and women.

Table 1.3 Population: subnational

Government Office Regions of England — Numbers (thousands) and percentage age distribution

Mid-year	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West
Estimates									
1971	2,679	7,108	4,902	3,652	5,146	4,454	7,529	6,830	4,112
1976	2,671	7,043	4,924	3,774	5,178	4,672	7,089	7,029	4,280
1981	2,636	6,940	4,918	3,853	5,187	4,854	6,806	7,245	4,381
1986	2,594	6,833	4,884	3,908	5,180	4,999	6,774	7,468	4,548
1991	2,587	6,843	4,936	4,011	5,230	5,121	6,829	7,629	4,688
1993	2,594	6,847	4,954	4,056	5,246	5,154	6,844	7,673	4,734
1994	2,589	6,839	4,960	4,072	5,249	5,178	6,874	7,712	4,757
1995	2,583	6,828	4,961	4,092	5,257	5,206	6,913	7,763	4,782
1996	2,576	6,810	4,961	4,108	5,263	5,233	6,974	7,800	4,793
1997	2,568	6,794	4,958	4,120	5,262	5,267	7,015	7,853	4,827
1998	2,561	6,792	4,958	4,133	5,271	5,302	7,065	7,889	4,849
1999	2,550	6,773	4,956	4,152	5,272	5,339	7,154	7,955	4,881
2000	2,543	6,774	4,959	4,168	5,270	5,375	7,237	7,991	4,917
2001	2,540	6,773	4,977	4,190	5,281	5,400	7,322	8,023	4,943
2002	2,541	6,778	5,002	4,222	5,295	5,433	7,362	8,047	4,973
2003	2,541	6,800	5,028	4,254	5,312	5,475	7,364	8,087	5,005
2004	2,542	6,820	5,064	4,291	5,327	5,511	7,389	8,125	5,042
2005	2,550	6,840	5,108	4,328	5,351	5,563	7,456	8,185	5,087
2006	2,556	6,853	5,142	4,364	5,367	5,607	7,512	8,238	5,124
2007	2,564	6,864	5,177	4,400	5,382	5,661	7,557	8,309	5,178
2008	2,575	6,876	5,213	4,433	5,411	5,729	7,620	8,380	5,209
2008 by age group **(percentages)**									
0–4	*5.6*	*6.0*	*5.9*	*5.8*	*6.2*	*6.0*	*7.2*	*5.9*	*5.4*
5–15	*12.3*	*12.9*	*12.7*	*12.6*	*13.2*	*13.0*	*12.1*	*13.0*	*12.3*
16–44	*38.7*	*39.2*	*40.2*	*39.1*	*38.9*	*38.4*	*48.1*	*38.6*	*36.8*
45–64M/59F	*23.3*	*22.4*	*22.0*	*22.7*	*22.0*	*22.4*	*18.8*	*22.6*	*23.0*
65M/60F–74	*12.0*	*11.8*	*11.5*	*11.9*	*11.8*	*11.9*	*8.1*	*11.6*	*13.0*
75 and over	*8.0*	*7.7*	*7.7*	*7.9*	*7.9*	*8.3*	*5.7*	*8.3*	*9.5*
Projections[1]									
2006	2,556	6,853	5,142	4,364	5,367	5,607	7,512	8,238	5,124
2011	2,594	7,014	5,377	4,591	5,506	5,890	7,817	8,550	5,368
2016	2,638	7,193	5,621	4,825	5,662	6,179	8,114	8,871	5,620
2021	2,685	7,377	5,866	5,060	5,824	6,471	8,390	9,202	5,882
2026	2,730	7,546	6,101	5,286	5,977	6,747	8,633	9,523	6,139
2031	2,769	7,696	6,319	5,491	6,114	6,997	8,858	9,814	6,374
2031 by age group **(percentages)**									
0–4	*5.2*	*5.5*	*5.6*	*5.3*	*5.9*	*5.5*	*6.7*	*5.5*	*5.0*
5–15	*12.1*	*12.6*	*12.5*	*12.3*	*13.2*	*12.6*	*12.6*	*12.7*	*11.8*
16–44	*35.6*	*36.3*	*37.7*	*35.6*	*35.7*	*34.9*	*43.7*	*35.1*	*33.9*
45–64[2]	*23.0*	*23.2*	*23.0*	*23.8*	*22.8*	*23.7*	*22.9*	*23.6*	*23.7*
65–74[2]	*11.7*	*10.9*	*10.2*	*11.0*	*10.5*	*10.9*	*7.4*	*10.8*	*11.8*
75 and over	*12.4*	*11.5*	*10.9*	*12.0*	*11.9*	*12.4*	*6.7*	*12.4*	*13.9*

1 These projections are based on the 2006 population estimates and are consistent with the 2006-based national projections produced by the Office for National Statistics.

2 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes. Between 2024 and 2026 state pension age will increase from 65 years to 66 years for both men and women.

Table 1.4 Population: age and sex

Constituent countries of the United Kingdom

Numbers(thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F[1]	65M/60F[1] and over
United Kingdom																
Persons																
1981	56,357	730	2,726	8,147	9,019	8,010	6,774	9,540	2,935	5,195	2,677	..	..	12,543	33,780	10,035
1986	56,684	748	2,886	7,143	9,200	8,007	7,711	9,212	3,069	5,020	2,971	716	..	11,645	34,725	10,313
1991	57,439	790	3,077	7,141	8,168	8,898	7,918	9,500	2,888	5,067	3,119	626	248	11,685	35,197	10,557
1996	58,164	719	3,019	7,544	7,231	9,131	7,958	10,553	2,785	5,066	3,129	711	317	12,018	35,498	10,649
2001	59,113	663	2,819	7,624	7,261	8,475	8,846	11,168	2,884	4,947	3,296	753	377	11,863	36,406	10,845
2002	59,323	661	2,753	7,603	7,400	8,264	9,004	11,307	2,892	4,967	3,344	738	388	11,785	36,622	10,916
2003	59,557	680	2,706	7,546	7,573	8,084	9,105	11,412	2,949	5,001	3,398	706	399	11,720	36,826	11,012
2004	59,846	705	2,686	7,475	7,739	7,954	9,185	11,507	3,027	5,028	3,431	702	409	11,645	37,083	11,117
2005	60,238	716	2,713	7,373	7,886	7,935	9,245	11,616	3,114	5,046	3,420	755	419	11,589	37,418	11,232
2006	60,587	732	2,765	7,241	8,020	7,896	9,262	11,744	3,240	5,029	3,416	820	423	11,537	37,707	11,344
2007	60,975	756	2,837	7,128	8,156	7,859	9,248	11,728	3,483	5,058	3,424	873	425	11,509	37,904	11,562
2008	61,383	788	2,912	7,054	8,216	7,900	9,152	11,792	3,639	5,155	3,440	918	417	11,517	38,075	11,791
Males																
1981	27,412	374	1,400	4,184	4,596	4,035	3,409	4,711	1,376	2,264	922	..	..	6,439	17,646	3,327
1986	27,542	384	1,478	3,664	4,663	4,022	3,864	4,572	1,463	2,206	1,060	166	..	5,968	18,142	3,432
1991	27,909	403	1,572	3,655	4,146	4,432	3,949	4,732	1,390	2,272	1,146	166	46	5,976	18,303	3,630
1996	28,287	369	1,547	3,857	3,652	4,540	3,954	5,244	1,360	2,311	1,187	201	65	6,148	18,375	3,764
2001	28,832	338	1,445	3,906	3,672	4,215	4,382	5,534	1,412	2,308	1,308	227	85	6,077	18,827	3,928
2002	28,964	338	1,408	3,897	3,758	4,114	4,462	5,594	1,414	2,325	1,338	226	89	6,037	18,949	3,978
2003	29,109	349	1,384	3,868	3,855	4,024	4,514	5,646	1,440	2,347	1,369	219	94	6,006	19,075	4,028
2004	29,278	362	1,376	3,832	3,953	3,960	4,546	5,691	1,479	2,365	1,392	223	98	5,971	19,229	4,078
2005	29,497	367	1,389	3,781	4,030	3,952	4,581	5,745	1,522	2,380	1,400	247	103	5,941	19,426	4,130
2006	29,694	374	1,416	3,709	4,108	3,940	4,586	5,804	1,584	2,379	1,413	273	106	5,912	19,611	4,171
2007	29,916	387	1,453	3,649	4,193	3,936	4,578	5,786	1,701	2,398	1,432	295	108	5,895	19,789	4,233
2008	30,151	404	1,492	3,610	4,215	3,985	4,533	5,815	1,778	2,447	1,452	313	108	5,898	19,933	4,321
Females																
1981	28,946	356	1,327	3,963	4,423	3,975	3,365	4,829	1,559	2,931	1,756	..	..	6,104	16,134	6,708
1986	29,142	364	1,408	3,480	4,538	3,985	3,847	4,639	1,606	2,814	1,911	550	..	5,678	16,583	6,881
1991	29,530	387	1,505	3,487	4,021	4,466	3,968	4,769	1,498	2,795	1,972	460	202	5,709	16,894	6,927
1996	29,877	350	1,472	3,687	3,579	4,591	4,005	5,309	1,426	2,755	1,942	509	252	5,870	17,123	6,885
2001	30,281	324	1,375	3,718	3,589	4,260	4,465	5,634	1,473	2,640	1,987	526	292	5,786	17,579	6,917
2002	30,359	323	1,346	3,706	3,642	4,150	4,542	5,713	1,478	2,642	2,006	513	299	5,748	17,673	6,938
2003	30,449	331	1,322	3,678	3,718	4,060	4,590	5,766	1,509	2,654	2,029	487	305	5,714	17,751	6,984
2004	30,568	343	1,310	3,642	3,785	3,993	4,639	5,816	1,548	2,662	2,040	479	310	5,674	17,854	7,039
2005	30,741	349	1,324	3,592	3,856	3,983	4,663	5,871	1,591	2,666	2,020	509	316	5,647	17,992	7,102
2006	30,893	357	1,349	3,532	3,912	3,956	4,675	5,940	1,656	2,650	2,002	547	317	5,625	18,096	7,172
2007	31,059	368	1,383	3,480	3,963	3,924	4,670	5,942	1,782	2,660	1,992	578	317	5,615	18,116	7,329
2008	31,232	385	1,420	3,443	4,001	3,916	4,619	5,978	1,861	2,708	1,988	605	309	5,620	18,141	7,471
England and Wales																
Persons																
1981	49,634	634	2,372	7,085	7,873	7,086	5,996	8,433	2,607	4,619	2,388	383	157	10,910	29,796	8,928
1986	49,999	654	2,522	6,226	8,061	7,052	6,856	8,136	2,725	4,470	2,655	461	182	10,161	30,647	9,190
1991	50,748	698	2,713	6,248	7,165	7,862	7,022	8,407	2,553	4,506	2,790	561	223	10,247	31,100	9,400
1996	51,410	637	2,668	6,636	6,336	8,076	7,017	9,363	2,457	4,496	2,801	639	285	10,584	31,353	9,474
2001	52,360	589	2,502	6,740	6,387	7,536	7,816	9,898	2,549	4,377	2,947	677	340	10,495	32,226	9,639
2002	52,572	589	2,445	6,728	6,518	7,357	7,964	10,018	2,555	4,394	2,989	664	351	10,437	32,435	9,700
2003	52,797	607	2,404	6,682	6,679	7,203	8,058	10,104	2,606	4,422	3,037	634	360	10,388	32,626	9,783
2004	53,057	629	2,390	6,618	6,836	7,090	8,133	10,177	2,675	4,445	3,063	632	370	10,326	32,856	9,875
2005	53,419	639	2,415	6,528	6,974	7,078	8,194	10,264	2,757	4,461	3,052	680	379	10,278	33,164	9,977
2006	53,729	653	2,462	6,412	7,095	7,040	8,213	10,369	2,874	4,444	3,045	740	382	10,235	33,417	10,077
2007	54,072	675	2,528	6,314	7,219	6,999	8,209	10,347	3,092	4,468	3,049	787	385	10,212	33,588	10,271
2008	54,440	703	2,594	6,250	7,275	7,031	8,128	10,398	3,235	4,556	3,062	829	378	10,223	33,738	10,479
Males																
1981	24,160	324	1,218	3,639	4,011	3,569	3,024	4,178	1,227	2,020	825	94	32	5,601	15,589	2,970
1986	24,311	335	1,292	3,194	4,083	3,542	3,438	4,053	1,302	1,972	951	115	35	5,208	16,031	3,072
1991	24,681	356	1,385	3,198	3,638	3,920	3,504	4,199	1,234	2,027	1,029	150	42	5,240	16,193	3,248
1996	25,030	327	1,368	3,393	3,202	4,020	3,489	4,659	1,205	2,059	1,067	182	59	5,416	16,247	3,367
2001	25,574	301	1,281	3,453	3,231	3,758	3,881	4,907	1,252	2,052	1,175	206	77	5,376	16,688	3,510
2002	25,704	301	1,249	3,448	3,311	3,672	3,957	4,958	1,253	2,067	1,202	204	81	5,346	16,804	3,554
2003	25,841	312	1,230	3,425	3,399	3,594	4,007	5,002	1,276	2,085	1,229	198	85	5,324	16,920	3,597
2004	25,995	323	1,225	3,394	3,493	3,538	4,036	5,037	1,310	2,100	1,248	202	89	5,295	17,060	3,640
2005	26,197	327	1,237	3,348	3,565	3,530	4,073	5,080	1,351	2,113	1,256	224	94	5,270	17,241	3,685
2006	26,371	334	1,261	3,284	3,636	3,517	4,080	5,130	1,407	2,111	1,267	248	96	5,245	17,405	3,722
2007	26,569	346	1,295	3,231	3,715	3,508	4,076	5,110	1,511	2,127	1,283	268	99	5,230	17,563	3,775
2008	26,780	360	1,329	3,199	3,735	3,550	4,039	5,134	1,582	2,170	1,300	285	99	5,234	17,692	3,854
Females																
1981	25,474	310	1,154	3,446	3,863	3,517	2,972	4,255	1,380	2,599	1,564	289	126	5,309	14,207	5,958
1986	25,687	319	1,231	3,032	3,978	3,509	3,418	4,083	1,422	2,498	1,704	346	148	4,953	14,616	6,118
1991	26,067	342	1,328	3,050	3,527	3,943	3,517	4,208	1,319	2,479	1,761	411	181	5,007	14,908	6,152
1996	26,381	310	1,300	3,243	3,134	4,056	3,528	4,704	1,252	2,437	1,734	457	227	5,168	15,106	6,107
2001	26,786	288	1,220	3,287	3,156	3,778	3,935	4,992	1,297	2,326	1,771	471	263	5,119	15,538	6,129
2002	26,868	287	1,195	3,280	3,207	3,685	4,007	5,060	1,302	2,328	1,787	460	270	5,091	15,631	6,146
2003	26,956	295	1,175	3,256	3,280	3,610	4,051	5,103	1,329	2,338	1,807	436	275	5,064	15,705	6,186
2004	27,062	306	1,165	3,224	3,342	3,552	4,097	5,141	1,365	2,345	1,815	430	280	5,031	15,796	6,235
2005	27,223	312	1,178	3,180	3,409	3,548	4,121	5,183	1,406	2,348	1,796	456	285	5,008	15,922	6,292
2006	27,358	319	1,201	3,127	3,458	3,523	4,134	5,239	1,466	2,333	1,778	492	286	4,990	16,012	6,355
2007	27,503	329	1,233	3,082	3,505	3,490	4,132	5,237	1,581	2,342	1,767	520	286	4,982	16,026	6,496
2008	27,659	343	1,266	3,051	3,540	3,481	4,090	5,264	1,654	2,386	1,762	544	279	4,988	16,046	6,625

1 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes.

Table 1.4 continued **Population: age and sex**

Constituent countries of the United Kingdom

Numbers(thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F[1]	65M/60F[1] and over
England																
Persons																
1981	46,821	598	2,235	6,678	7,440	6,703	5,663	7,948	2,449	4,347	2,249	362	149	10,285	28,133	8,403
1986	47,188	618	2,380	5,869	7,623	6,682	6,478	7,672	2,559	4,199	2,501	435	172	9,583	28,962	8,643
1991	47,875	660	2,560	5,885	6,772	7,460	6,633	7,920	2,399	4,222	2,626	529	210	9,658	29,390	8,827
1996	48,519	603	2,523	6,255	5,985	7,667	6,638	8,822	2,310	4,217	2,631	602	269	9,985	29,639	8,895
2001	49,450	558	2,366	6,359	6,032	7,171	7,407	9,327	2,395	4,113	2,764	638	321	9,908	30,487	9,055
2002	49,652	559	2,313	6,348	6,153	7,003	7,550	9,439	2,399	4,129	2,803	625	331	9,855	30,686	9,111
2003	49,866	576	2,275	6,305	6,304	6,859	7,641	9,522	2,445	4,155	2,850	596	340	9,812	30,867	9,188
2004	50,111	597	2,262	6,245	6,450	6,751	7,712	9,591	2,509	4,175	2,875	593	349	9,755	31,083	9,273
2005	50,466	606	2,289	6,161	6,583	6,742	7,772	9,675	2,586	4,189	2,865	638	357	9,713	31,384	9,370
2006	50,763	620	2,335	6,051	6,696	6,708	7,793	9,777	2,697	4,171	2,860	695	360	9,674	31,627	9,462
2007	51,092	641	2,398	5,961	6,812	6,669	7,791	9,758	2,904	4,192	2,865	739	363	9,656	31,792	9,645
2008	51,446	668	2,462	5,904	6,863	6,700	7,718	9,809	3,039	4,274	2,877	779	356	9,669	31,938	9,839
Males																
1981	22,795	306	1,147	3,430	3,790	3,377	2,856	3,938	1,154	1,902	777	89	30	5,280	14,717	2,798
1986	22,949	317	1,219	3,010	3,862	3,357	3,249	3,822	1,224	1,853	897	108	33	4,911	15,147	2,891
1991	23,291	336	1,307	3,011	3,439	3,721	3,311	3,957	1,159	1,900	970	141	39	4,938	15,302	3,050
1996	23,629	309	1,294	3,198	3,023	3,818	3,302	4,390	1,133	1,932	1,003	172	55	5,110	15,358	3,161
2001	24,166	285	1,212	3,257	3,053	3,580	3,681	4,624	1,176	1,928	1,103	194	73	5,075	15,793	3,298
2002	24,290	286	1,182	3,253	3,127	3,500	3,755	4,673	1,176	1,942	1,128	193	77	5,047	15,904	3,339
2003	24,419	296	1,163	3,232	3,209	3,425	3,803	4,715	1,197	1,958	1,154	186	80	5,028	16,012	3,379
2004	24,563	306	1,159	3,202	3,297	3,371	3,831	4,748	1,228	1,972	1,172	190	84	5,001	16,143	3,419
2005	24,758	310	1,172	3,160	3,365	3,365	3,868	4,791	1,267	1,984	1,179	210	88	4,979	16,317	3,461
2006	24,926	317	1,196	3,100	3,432	3,353	3,875	4,839	1,320	1,981	1,190	233	91	4,957	16,475	3,494
2007	25,114	328	1,228	3,050	3,506	3,345	3,874	4,821	1,418	1,995	1,205	251	93	4,944	16,626	3,544
2008	25,319	342	1,260	3,021	3,523	3,385	3,840	4,845	1,485	2,035	1,222	268	93	4,950	16,751	3,617
Females																
1981	24,026	292	1,088	3,248	3,650	3,327	2,807	4,009	1,295	2,445	1,472	273	119	5,004	13,416	5,605
1986	24,239	301	1,161	2,859	3,761	3,325	3,229	3,850	1,335	2,346	1,604	326	140	4,672	13,815	5,752
1991	24,584	324	1,253	2,873	3,333	3,739	3,322	3,964	1,239	2,323	1,656	388	171	4,720	14,088	5,777
1996	24,890	293	1,229	3,056	2,961	3,849	3,336	4,432	1,177	2,286	1,628	430	214	4,876	14,281	5,734
2001	25,284	273	1,154	3,102	2,979	3,591	3,726	4,702	1,219	2,185	1,661	444	248	4,834	14,694	5,757
2002	25,362	273	1,131	3,095	3,026	3,503	3,795	4,767	1,223	2,187	1,676	433	254	4,808	14,782	5,772
2003	25,448	280	1,112	3,073	3,095	3,433	3,838	4,808	1,248	2,197	1,696	410	260	4,784	14,854	5,809
2004	25,548	291	1,103	3,043	3,153	3,380	3,881	4,843	1,280	2,203	1,703	403	264	4,753	14,940	5,854
2005	25,708	296	1,117	3,001	3,218	3,378	3,905	4,885	1,319	2,206	1,686	428	269	4,733	15,066	5,908
2006	25,837	303	1,139	2,952	3,264	3,355	3,918	4,938	1,377	2,190	1,670	461	270	4,717	15,152	5,968
2007	25,978	312	1,170	2,910	3,306	3,324	3,917	4,937	1,485	2,198	1,660	488	270	4,711	15,166	6,100
2008	26,127	326	1,201	2,883	3,339	3,315	3,878	4,963	1,554	2,239	1,655	511	263	4,719	15,187	6,222
Wales																
Persons																
1981	2,813	36	136	407	434	383	333	485	158	272	139	21	8	626	1,663	525
1986	2,811	37	143	357	438	369	378	464	166	271	154	26	10	578	1,686	547
1991	2,873	38	153	363	393	402	389	486	154	284	164	32	13	589	1,711	573
1996	2,891	34	146	381	352	409	379	541	147	279	170	37	17	598	1,714	578
2001	2,910	32	136	382	356	365	409	572	154	264	183	39	20	587	1,739	584
2002	2,920	30	132	380	365	354	414	578	156	265	185	39	20	582	1,749	589
2003	2,931	31	129	377	376	345	417	582	161	268	187	38	21	577	1,759	595
2004	2,946	32	127	373	385	339	421	586	166	270	188	39	21	572	1,773	602
2005	2,954	32	126	367	390	335	421	589	171	271	186	42	21	566	1,780	608
2006	2,966	33	127	361	399	332	421	592	177	273	186	45	22	561	1,790	615
2007	2,980	34	130	353	407	330	418	590	188	276	185	48	22	557	1,797	627
2008	2,993	35	133	346	412	331	411	589	197	282	185	50	22	553	1,801	639
Males																
1981	1,365	18	70	209	221	193	168	240	73	118	48	5	2	321	871	173
1986	1,362	19	73	184	221	186	190	231	79	119	54	7	2	297	885	181
1991	1,391	20	78	186	199	199	194	242	74	128	60	8	2	302	891	198
1996	1,401	17	74	195	179	203	187	269	72	128	64	10	3	306	890	206
2001	1,409	16	69	196	179	178	200	283	75	124	73	12	4	301	895	212
2002	1,414	16	68	195	184	172	202	285	77	125	74	12	5	299	900	215
2003	1,423	16	66	194	190	168	204	287	79	127	75	11	5	296	908	218
2004	1,432	16	65	192	196	166	205	288	82	128	76	12	5	294	917	221
2005	1,439	17	65	189	200	166	205	290	84	129	77	13	5	291	924	224
2006	1,445	17	65	185	204	164	205	291	87	130	77	15	5	288	929	227
2007	1,454	17	67	181	209	164	203	289	93	132	78	16	6	286	937	231
2008	1,461	18	68	178	211	165	199	288	97	135	78	17	6	284	941	236
Females																
1981	1,448	18	66	199	213	190	165	246	85	154	91	16	6	305	791	352
1986	1,449	18	70	173	217	184	188	233	87	152	100	20	8	282	801	366
1991	1,482	19	75	177	194	203	195	244	80	156	104	24	10	288	820	375
1996	1,490	16	71	186	173	206	192	272	75	151	106	27	13	293	825	373
2001	1,502	15	66	186	177	187	209	289	78	141	110	27	15	286	844	372
2002	1,506	15	65	185	181	182	212	293	80	140	111	27	16	283	849	374
2003	1,508	15	63	183	185	176	214	295	82	141	112	27	16	280	851	377
2004	1,514	15	62	182	189	172	216	298	84	142	112	26	16	278	856	380
2005	1,515	16	61	179	191	170	216	299	87	142	110	28	16	275	856	383
2006	1,521	16	62	176	195	168	216	301	90	143	108	30	16	273	861	387
2007	1,526	16	63	172	198	166	215	300	96	144	107	32	16	271	860	395
2008	1,532	17	65	168	201	166	211	301	100	147	107	33	16	269	860	403

1 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes.

Table 1.4 continued **Population: age and sex**

Constituent countries of the United Kingdom — Numbers(thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F[1]	65M/60F[1] and over
Scotland																
Persons																
1981	5,180	69	249	780	875	724	603	880	260	460	232	35	14	1,188	3,110	882
1986	5,112	66	257	656	863	739	665	849	273	435	252	42	15	1,061	3,161	890
1991	5,083	66	258	634	746	795	696	853	265	441	259	51	19	1,021	3,151	912
1996	5,092	59	252	643	651	798	722	925	259	448	256	57	24	1,019	3,151	922
2001	5,064	52	224	629	633	696	782	979	262	447	272	59	29	970	3,150	944
2002	5,055	51	217	622	639	669	788	993	262	449	276	58	30	955	3,150	950
2003	5,057	52	212	614	648	648	793	1,008	265	452	281	55	31	943	3,156	958
2004	5,078	54	210	609	653	635	796	1,025	270	455	286	54	31	935	3,175	968
2005	5,095	54	211	600	659	629	794	1,042	273	457	286	59	32	929	3,191	975
2006	5,117	55	213	588	668	627	790	1,058	280	456	287	63	32	922	3,213	983
2007	5,144	57	218	576	676	629	781	1,060	301	457	290	66	32	917	3,227	1,001
2008	5,169	60	223	567	681	634	766	1,068	312	463	293	69	31	914	3,238	1,017
Males																
1981	2,495	35	128	400	445	364	298	424	118	194	77	8	3	610	1,603	282
1986	2,462	34	131	336	438	371	331	410	127	184	86	10	3	543	1,636	283
1991	2,445	34	132	324	377	394	345	415	124	192	91	13	3	522	1,623	299
1996	2,447	30	128	328	327	392	355	454	122	198	93	15	5	521	1,616	310
2001	2,434	26	115	322	319	337	379	483	125	200	103	17	6	497	1,610	327
2002	2,432	26	111	319	324	325	382	490	125	202	106	17	7	489	1,612	331
2003	2,435	26	108	314	329	315	383	496	126	204	108	16	7	483	1,616	336
2004	2,446	28	107	312	332	310	384	503	129	207	111	16	7	479	1,627	341
2005	2,456	28	107	307	335	309	382	511	131	208	112	18	7	476	1,635	345
2006	2,469	28	109	301	340	310	380	517	135	208	113	20	8	472	1,649	349
2007	2,486	29	112	295	345	313	375	517	146	210	116	21	8	469	1,662	354
2008	2,500	30	115	290	348	317	368	520	152	213	118	22	8	468	1,672	361
Females																
1981	2,685	33	121	380	430	359	305	456	142	265	155	27	11	579	1,506	600
1986	2,649	32	126	320	424	368	334	439	146	250	166	32	12	518	1,525	606
1991	2,639	32	126	309	369	402	351	437	141	249	168	38	16	499	1,528	612
1996	2,645	28	123	315	324	406	367	470	137	250	164	42	20	498	1,535	612
2001	2,630	26	109	307	314	359	403	496	137	246	169	43	23	473	1,540	617
2002	2,623	25	106	303	315	344	406	504	137	247	171	41	23	466	1,538	619
2003	2,623	25	104	300	318	332	410	512	139	248	173	39	24	460	1,540	622
2004	2,632	26	103	297	321	325	412	521	141	248	175	38	24	457	1,549	627
2005	2,639	26	103	293	324	320	411	531	142	249	174	41	25	453	1,556	630
2006	2,647	27	104	287	328	317	410	541	145	247	174	43	25	450	1,564	634
2007	2,659	28	106	281	332	316	406	542	155	247	174	45	24	448	1,564	646
2008	2,668	29	109	277	334	317	398	548	160	250	175	47	24	446	1,566	656
Northern Ireland																
Persons																
1981	1,543	27	106	282	271	200	175	227	68	116	57	..	..	444	874	224
1986	1,574	28	107	261	277	217	190	227	71	115	64	16	..	423	917	234
1991	1,607	26	106	260	256	240	200	241	70	121	69	14	6	417	945	246
1996	1,662	24	99	266	244	257	220	266	70	123	72	15	7	415	993	253
2001	1,689	22	93	255	240	243	248	290	74	123	77	16	7	397	1,030	262
2002	1,697	22	91	253	243	238	251	296	75	125	79	16	7	393	1,037	266
2003	1,703	21	89	251	246	233	254	301	78	126	81	16	8	388	1,044	271
2004	1,710	22	87	248	250	229	256	305	81	127	82	16	8	383	1,052	275
2005	1,724	23	88	245	253	228	257	310	84	128	83	17	8	381	1,064	280
2006	1,742	23	89	242	258	229	259	316	87	130	83	18	8	380	1,077	284
2007	1,759	24	91	239	260	231	259	321	90	132	84	19	8	380	1,089	290
2008	1,775	26	94	237	259	235	257	327	91	136	85	20	8	381	1,098	296
Males																
1981	757	14	54	145	140	102	87	109	32	50	21	..	..	228	454	75
1986	768	14	55	134	142	109	95	110	33	50	23	4	..	217	474	77
1991	783	13	54	133	131	119	100	118	32	53	26	4	1	213	487	83
1996	810	12	51	136	124	128	109	131	33	54	27	4	1	212	511	87
2001	824	11	48	131	122	120	122	144	35	56	30	5	2	204	529	92
2002	829	11	47	130	124	117	123	147	36	56	31	5	2	202	534	94
2003	833	11	46	129	126	115	124	149	38	57	31	5	2	199	538	95
2004	836	11	45	127	128	113	125	151	39	58	32	5	2	197	542	97
2005	844	12	45	126	130	113	126	153	41	59	32	5	2	196	550	99
2006	853	12	46	124	132	113	127	156	42	60	33	6	2	195	558	101
2007	862	13	47	123	134	114	127	158	44	61	33	6	2	195	564	103
2008	871	13	48	121	133	117	127	161	44	63	34	6	2	195	569	106
Females																
1981	786	13	52	137	130	98	88	118	37	66	37	..	..	216	420	150
1986	805	13	52	127	135	107	96	118	38	65	41	12	..	206	442	157
1991	824	13	52	127	125	121	100	123	38	67	44	10	4	203	458	163
1996	851	11	49	130	120	129	110	135	37	69	45	11	6	203	482	167
2001	865	10	45	124	119	123	126	146	38	68	47	11	6	193	501	170
2002	868	11	44	123	119	120	128	149	39	68	48	11	6	191	504	173
2003	870	10	43	122	120	118	129	152	40	68	49	11	6	189	506	175
2004	874	11	42	121	122	116	130	154	42	69	50	11	6	187	509	178
2005	880	11	43	119	123	115	131	157	43	69	50	11	6	186	514	181
2006	888	11	43	118	126	115	132	160	45	69	51	12	6	185	520	183
2007	897	12	44	116	127	117	132	163	46	70	51	13	6	185	526	187
2008	904	12	46	115	127	118	131	165	47	72	51	13	6	186	529	190

1 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes.

Table 1.5 Population: age, sex and legal marital status

England and Wales

Number(thousands)

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
Aged											
16 and over											
1971	36,818	4,173	12,522	187	682	17,563	3,583	12,566	296	2,810	19,255
1976	37,486	4,369	12,511	376	686	17,941	3,597	12,538	533	2,877	19,545
1981	38,724	5,013	12,238	611	698	18,559	4,114	12,284	828	2,939	20,165
1986	39,837	5,625	11,867	917	695	19,103	4,617	12,000	1,165	2,953	20,734
1991	40,501	5,891	11,636	1,187	727	19,441	4,817	11,833	1,459	2,951	21,060
1996	40,827	6,225	11,310	1,346	733	19,614	5,168	11,433	1,730	2,881	21,212
1999	41,325	6,582	11,143	1,433	732	19,890	5,526	11,235	1,875	2,800	21,435
2000	41,569	6,721	11,113	1,456	731	20,022	5,650	11,199	1,927	2,772	21,547
2001	41,865	6,894	11,090	1,482	733	20,198	5,798	11,150	1,975	2,745	21,667
2002	42,135	7,062	11,043	1,524	730	20,358	5,944	11,094	2,031	2,709	21,777
2003	42,409	7,226	10,995	1,571	726	20,517	6,102	11,033	2,087	2,669	21,892
2004	42,731	7,419	10,941	1,617	722	20,700	6,279	10,980	2,144	2,628	22,031
2005	43,141	7,623	10,923	1,662	719	20,927	6,486	10,943	2,198	2,588	22,214
2006	43,494	7,833	10,881	1,696	716	21,126	6,683	10,893	2,244	2,548	22,367
2007	43,860	8,049	10,851	1,724	715	21,338	6,871	10,851	2,289	2,511	22,521
2008	44,217	8,238	10,849	1,746	713	21,546	7,057	10,812	2,326	2,477	22,671
16–19											
1971	2,666	1,327	34	0	0	1,362	1,163	142	0	0	1,305
1976	2,901	1,454	28	0	0	1,482	1,289	129	0	0	1,419
1981	3,310	1,675	20	0	0	1,694	1,523	93	0	0	1,616
1986	3,131	1,587	10	0	0	1,596	1,484	49	1	0	1,535
1991	2,665	1,358	8	0	0	1,366	1,267	32	0	0	1,300
1996	2,402	1,209	6	0	0	1,216	1,164	21	0	0	1,186
1999	2,543	1,280	6	1	1	1,288	1,234	20	1	1	1,255
2000	2,523	1,276	6	1	1	1,283	1,221	18	1	1	1,240
2001	2,567	1,304	5	1	1	1,312	1,237	16	1	1	1,255
2002	2,630	1,351	5	1	1	1,357	1,258	13	1	1	1,273
2003	2,703	1,392	4	1	1	1,397	1,293	12	0	1	1,306
2004	2,771	1,424	3	0	0	1,428	1,331	11	0	0	1,343
2005	2,801	1,434	2	0	0	1,436	1,355	10	0	0	1,365
2006	2,829	1,457	2	0	0	1,459	1,363	7	0	0	1,370
2007	2,861	1,473	2	0	0	1,475	1,379	7	0	0	1,386
2008	2,859	1,467	2	0	0	1,469	1,383	7	0	0	1,390
20–24											
1971	3,773	1,211	689	3	0	1,904	745	1,113	9	2	1,869
1976	3,395	1,167	557	4	0	1,728	725	925	16	2	1,667
1981	3,744	1,420	466	10	1	1,896	1,007	811	27	2	1,847
1986	4,171	1,768	317	14	0	2,099	1,383	657	32	1	2,072
1991	3,911	1,717	242	12	0	1,971	1,421	490	29	1	1,941
1996	3,291	1,538	117	3	0	1,658	1,361	260	11	1	1,633
1999	3,047	1,449	78	2	0	1,530	1,320	188	8	1	1,517
2000	3,088	1,470	74	3	0	1,548	1,352	180	8	1	1,540
2001	3,157	1,501	74	3	1	1,579	1,390	178	8	1	1,578
2002	3,212	1,530	73	3	1	1,606	1,427	170	8	1	1,606
2003	3,281	1,568	74	3	1	1,645	1,459	166	8	1	1,636
2004	3,376	1,632	75	3	1	1,712	1,491	163	8	2	1,664
2005	3,477	1,693	73	3	1	1,771	1,539	157	8	2	1,706
2006	3,558	1,741	67	3	1	1,812	1,591	146	7	1	1,746
2007	3,661	1,813	64	3	1	1,881	1,637	136	6	1	1,780
2008	3,741	1,855	61	2	1	1,919	1,689	126	6	1	1,822
25–29											
1971	3,267	431	1,206	16	1	1,654	215	1,367	29	4	1,614
1976	3,758	533	1,326	39	2	1,900	267	1,522	65	5	1,859
1981	3,372	588	1,057	54	1	1,700	331	1,247	89	4	1,671
1986	3,713	835	949	79	1	1,863	527	1,207	113	4	1,850
1991	4,154	1,132	856	82	1	2,071	800	1,158	123	2	2,083
1996	3,950	1,273	650	46	1	1,970	977	906	93	3	1,980
1999	3,687	1,304	497	34	1	1,836	1,051	725	72	3	1,851
2000	3,605	1,305	459	31	1	1,796	1,065	677	65	3	1,810
2001	3,487	1,293	420	28	1	1,742	1,059	625	58	3	1,745
2002	3,365	1,277	384	26	1	1,688	1,049	574	52	3	1,676
2003	3,284	1,265	356	24	1	1,647	1,051	536	48	2	1,638
2004	3,280	1,278	339	23	1	1,641	1,078	513	46	2	1,639
2005	3,354	1,320	331	23	1	1,675	1,128	504	45	2	1,679
2006	3,434	1,371	324	22	1	1,718	1,178	490	45	2	1,716
2007	3,526	1,422	326	22	1	1,770	1,223	486	44	2	1,756
2008	3,617	1,486	329	21	1	1,837	1,259	477	42	2	1,780

Table 1.5 continued **Population: age, sex and legal marital status**

England and Wales

Number(thousands)

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
30–34											
1971	2,897	206	1,244	23	3	1,475	111	1,269	34	8	1,422
1976	3,220	236	1,338	55	3	1,632	118	1,388	75	8	1,588
1981	3,715	318	1,451	97	3	1,869	165	1,544	129	9	1,846
1986	3,338	355	1,197	124	2	1,679	206	1,293	154	6	1,660
1991	3,708	520	1,172	155	2	1,849	335	1,330	189	5	1,859
1996	4,126	776	1,135	138	2	2,050	551	1,316	201	7	2,076
1999	4,113	877	1,043	121	3	2,044	651	1,223	188	7	2,069
2000	4,076	904	1,007	114	2	2,027	679	1,182	181	7	2,049
2001	4,050	934	971	108	2	2,016	711	1,142	174	7	2,033
2002	3,992	951	927	103	2	1,984	739	1,097	166	6	2,009
2003	3,919	964	881	99	2	1,947	760	1,049	158	6	1,972
2004	3,810	967	834	94	2	1,897	768	993	147	5	1,913
2005	3,724	972	793	88	2	1,856	778	948	137	5	1,868
2006	3,606	972	744	81	2	1,799	782	896	124	5	1,808
2007	3,473	962	701	74	1	1,738	777	840	114	4	1,735
2008	3,414	965	678	68	1	1,713	787	804	105	4	1,701
35–44											
1971	5,736	317	2,513	48	13	2,891	201	2,529	66	48	2,845
1976	5,608	286	2,442	104	12	2,843	167	2,427	129	42	2,765
1981	5,996	316	2,519	178	12	3,024	170	2,540	222	41	2,972
1986	6,856	396	2,738	293	12	3,438	213	2,815	350	39	3,418
1991	7,022	477	2,632	384	11	3,504	280	2,760	444	34	3,517
1996	7,017	653	2,426	398	12	3,489	427	2,568	497	36	3,528
1999	7,475	832	2,459	408	13	3,711	577	2,617	533	37	3,763
2000	7,661	899	2,481	410	12	3,802	635	2,640	547	37	3,859
2001	7,816	963	2,494	411	12	3,881	692	2,649	558	36	3,935
2002	7,964	1,027	2,499	420	12	3,957	749	2,653	570	35	4,007
2003	8,058	1,080	2,488	427	12	4,007	801	2,638	579	33	4,051
2004	8,133	1,126	2,466	433	11	4,036	853	2,623	588	32	4,097
2005	8,194	1,173	2,452	436	11	4,073	903	2,597	590	31	4,121
2006	8,213	1,219	2,419	431	11	4,080	955	2,564	585	30	4,134
2007	8,209	1,259	2,385	422	10	4,076	1,004	2,525	574	29	4,132
2008	8,128	1,289	2,333	407	10	4,039	1,044	2,463	555	27	4,090
45–64											
1971	11,887	502	4,995	81	173	5,751	569	4,709	125	733	6,136
1976	11,484	496	4,787	141	160	5,583	462	4,568	188	683	5,901
1981	11,040	480	4,560	218	147	5,405	386	4,358	271	620	5,635
1986	10,860	461	4,422	331	141	5,355	327	4,220	388	570	5,505
1991	10,960	456	4,394	456	127	5,433	292	4,211	521	503	5,527
1996	11,820	528	4,587	628	121	5,864	318	4,466	732	440	5,956
1999	12,198	589	4,627	706	121	6,043	355	4,541	844	415	6,155
2000	12,328	615	4,638	727	121	6,101	372	4,564	881	410	6,227
2001	12,447	644	4,647	747	121	6,159	391	4,578	918	401	6,289
2002	12,573	670	4,647	775	119	6,211	413	4,599	959	391	6,362
2003	12,710	700	4,653	807	118	6,278	437	4,616	999	380	6,432
2004	12,852	734	4,657	840	116	6,347	464	4,630	1,041	370	6,505
2005	13,021	771	4,672	873	115	6,431	496	4,650	1,084	361	6,590
2006	13,243	813	4,703	906	115	6,537	534	4,688	1,130	355	6,706
2007	13,439	857	4,716	935	114	6,621	576	4,719	1,175	347	6,818
2008	13,633	906	4,734	962	113	6,715	624	4,739	1,216	339	6,918
65 and over											
1971	6,592	179	1,840	17	492	2,527	580	1,437	32	2,016	4,065
1976	7,119	197	2,033	33	510	2,773	569	1,579	60	2,138	4,347
1981	7,548	216	2,167	54	534	2,971	533	1,692	90	2,263	4,578
1986	7,768	223	2,234	76	539	3,072	477	1,759	127	2,333	4,696
1991	8,080	231	2,332	99	586	3,248	422	1,853	152	2,405	4,832
1996	8,221	247	2,390	134	597	3,367	369	1,897	196	2,393	4,854
1999	8,262	251	2,431	161	594	3,437	338	1,922	230	2,336	4,825
2000	8,287	252	2,449	171	593	3,466	327	1,938	243	2,313	4,821
2001	8,342	254	2,478	183	595	3,510	318	1,960	259	2,295	4,832
2002	8,398	255	2,509	196	594	3,554	308	1,987	276	2,272	4,844
2003	8,454	257	2,539	209	592	3,597	301	2,017	295	2,245	4,857
2004	8,510	258	2,568	223	591	3,640	293	2,046	314	2,216	4,870
2005	8,571	259	2,599	238	589	3,685	286	2,078	334	2,187	4,885
2006	8,611	260	2,622	252	587	3,722	279	2,102	353	2,155	4,889
2007	8,690	263	2,658	268	587	3,775	274	2,138	375	2,128	4,915
2008	8,825	268	2,713	285	587	3,854	271	2,195	401	2,103	4,971

Table 1.6 Components of population change

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year to mid-year	Population at start of period	Total annual change	Components of change (mid-year to mid-year or annual averages)								Population at end of period
			Live births	Deaths	Natural change (Live births – deaths)	Net civilian migration				Other changes	
						Total [1]	To/from rest of UK	To/from Irish Republic	To/from rest of the world		
United Kingdom											
1976–81	56,216	+27	705	662	+42	–33	–	–33		+18	56,357
1981–86	56,357	+65	733	662	+70	–5	–	..		..	56,684
1986–91	56,684	+148	782	647	+135	+13	–	..		..	57,439
1991–96	57,439	+145	756	639	+117	+29	–	..		..	58,164
1996–01	58,164	+190	706	623	+83	+107	..	..		..	59,113
2001–02	59,113	+210	663	601	+62	+148	..	..		..	59,323
2002–03	59,323	+234	682	605	+77	+157	..	..		..	59,557
2003–04	59,557	+289	707	603	+104	+185	..	..		..	59,846
2004–05	59,846	+393	717	591	+127	+266	..	..		..	60,238
2005–06	60,238	+349	734	575	+159	+190	..	..		..	60,587
2006–07	60,587	+388	758	571	+187	+201	..	..		..	60,975
2007–08	60,975	+408	791	570	+220	+187	..	..		..	61,383
England and Wales											
1976–81	49,459	+35	612	582	+ 30	– 9	+ 11	– 3	–17	+14	49,634
1981–86	49,634	+73	639	582	+ 57	+ 16	..	..	..	..	49,999
1986–91	49,999	+150	689	569	+ 120	+ 30	..	..	..	..	50,748
1991–96	50,748	+132	668	563	+ 106	+ 27	..	..	..	..	51,410
1996–01	51,410	+190	626	548	+ 78	+112	..	..	..	..	52,360
2001–02	52,360	+212	591	530	+ 61	+151	..	..	..	..	52,572
2002–03	52,572	+225	608	532	+ 76	+149	..	..	..	..	52,797
2003–04	52,797	+260	631	531	+101	+159	..	..	..	..	53,057
2004–05	53,057	+362	641	520	+121	+241	..	..	..	..	53,419
2005–06	53,419	+310	657	506	+151	+159	..	..	..	..	53,729
2006–07	53,729	+343	677	500	+177	+166	..	..	..	..	54,072
2007–08	54,072	+368	706	500	+206	+162	..	..	..	..	54,440
England											
1976–81	46,660	+32	577	546	+ 31	– 11	+ 6	– 3	–15	+12	46,821
1981–86	46,821	+73	603	547	+ 56	+ 18	..	..	..	..	47,188
1986–91	47,188	+137	651	535	+ 116	+ 21	..	..	..	..	47,875
1991–96	47,875	+129	632	528	+ 104	+ 24	..	..	..	..	48,519
1996–01	48,519	+186	593	514	+ 79	+107	..	..	..	..	49,450
2001–02	49,450	+203	560	497	+ 63	+139	..	..	..	..	49,652
2002–03	49,652	+214	578	498	+ 79	+135	..	..	..	..	49,866
2003–04	49,866	+245	600	498	+102	+143	..	..	..	..	50,111
2004–05	50,111	+355	608	487	+121	+234	..	..	..	..	50,466
2005–06	50,466	+297	623	474	+149	+148	..	..	..	..	50,763
2006–07	50,763	+329	643	469	+174	+155	..	..	..	..	51,092
2007–08	51,092	+354	671	469	+202	+152	..	..	..	..	51,446
Wales											
1976–81	2,799	+3	35	36	– 1	+ 2	+ 5	..	–2	+2	2,813
1981–86	2,813	–1	36	35	+ 1	– 1	..	..	..	..	2,811
1986–91	2,811	+12	38	34	+ 4	+ 8	..	..	..	..	2,873
1991–96	2,873	+4	36	35	+ 1	+ 2	..	..	..	..	2,891
1996–01	2,891	+4	33	34	– 1	+ 5	..	..	..	..	2,910
2001–02	2,910	+10	30	33	– 3	+ 12	..	..	..	..	2,920
2002–03	2,920	+11	31	33	– 3	+ 14	..	..	..	..	2,931
2003–04	2,931	+15	32	33	– 1	+ 17	..	..	..	..	2,946
2004–05	2,946	+7	33	33	0	+ 7	..	..	..	..	2,954
2005–06	2,954	+12	33	31	+ 2	+ 10	..	..	..	..	2,966
2006–07	2,966	+14	34	31	+ 2	+ 12	..	..	..	..	2,980
2007–08	2,980	+13	35	31	+4	+9	..	..	..	..	2,993
Scotland											
1976–81	5,233	–11	66	64	+ 2	– 16	– 7	–10		+4	5,180
1981–86	5,180	–14	66	64	+ 2	– 16	– 7	–7		+1	5,112
1986–91	5,112	–6	66	62	+ 3	– 9	..	..		..	5,083
1991–96	5,083	+2	63	61	+ 1	0	..	..		..	5,092
1996–01	5,092	–6	56	59	– 3	– 3	..	..		..	5,064
2001–02	5,064	–9	51	57	– 6	– 3	..	..		..	5,055
2002–03	5,055	+3	52	58	– 7	+ 9	..	..		..	5,057
2003–04	5,057	+21	54	58	– 4	+25	..	..		..	5,078
2004–05	5,078	+16	54	57	– 2	+ 19	..	..		..	5,095
2005–06	5,095	+22	55	55	0	+ 22	..	..		..	5,117
2006–07	5,117	+27	57	56	+ 1	+ 26	..	..		..	5,144
2007–08	5,144	+24	59	55	+4	+20	..	..		..	5,169
Northern Ireland											
1976–81	1,524	+3	27	17	+ 10	– 8	– 4	–3		+17	1,543
1981–86	1,543	+6	28	16	+ 12	– 5	– 3	–1		–	1,574
1986–91	1,574	+7	27	16	+ 12	– 5	– 3	–1		–	1,607
1991–96	1,607	+11	25	15	+ 9	+ 2	..	..		–	1,662
1996–01	1,662	+6	23	15	+ 8	– 3	..	..		..	1,689
2001–02	1,689	+7	21	14	+ 7	0	..	..		..	1,697
2002–03	1,697	+6	21	15	+ 7	– 1	..	..		..	1,703
2003–04	1,703	+8	22	15	+ 7	0	..	..		..	1,710
2004–05	1,710	+14	22	14	+ 8	+ 6	..	..		..	1,724
2005–06	1,724	+17	23	14	+ 8	+ 9	..	..		..	1,742
2006–07	1,742	+18	24	15	+ 9	+ 8	..	..		..	1,759
2007–08	1,759	+16	25	15	+11	+5	..	..		..	1,775

1 For UK, England, Wales and Scotland from 1981 onwards, this column is not an estimate of net civilian migration; it also includes "other" changes. It has been derived by subtraction using revised population estimates and natural change.

Table 2.1 Vital statistics summary

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter	All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
	Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
United Kingdom																		
1976	675.5	12.0	61.1	90	406.0	..	:	:	136.0	..	680.8	12.1	9.8	14.5	6.7	9.9	12.3	18.0
1981	730.7	13.0	91.3	125	397.8	49.4	:	:	157.0	11.3	658.0	11.7	8.2	11.2	4.9	6.7	8.8	12.0
1986	754.8	13.3	154.3	204	393.9	..	:	:	168.3	..	660.7	11.7	7.2	9.5	4.0	5.3	7.3	9.6
1991	792.3	13.8	236.1	298	349.7	..	:	:	173.5	..	646.2	11.2	5.8	7.4	3.5	4.4	6.5	8.1
1996	733.2	12.6	260.4	355	317.5	..	:	:	171.7	..	636.0	10.9	4.5	6.1	3.0	4.1	6.4	8.7
1999	700.0	11.9	271.6	388	301.1	..	:	:	158.8	..	632.1	10.8	4.05	5.8	2.73	3.9	5.80	8.2
2000	679.0	11.5	268.1	395	305.9	..	:	:	154.6	..	608.4	10.3	3.81	5.6	2.63	3.9	5.56	8.1
2001	669.1	11.3	268.0	401	286.1	..	:	:	156.8	..	602.3	10.2	3.69	5.5	2.45	3.7	5.39	8.0
2002	668.8	11.3	271.7	406	293.0	..	:	:	160.7	..	606.2	10.2	3.54	5.3	2.37	3.6	5.54	8.2
2003	695.6	11.7	288.5	415	308.6	..	:	:	166.7	..	612.0	10.3	3.69	5.3	2.54	3.7	5.92	8.5
2004	716.0	12.0	302.6	423	313.6	..	:	:	167.8	..	583.1	9.7	3.66	5.1	2.49	3.5	5.88	8.2
2005	722.5	12.0	310.2	429	286.8	..	1.95[10]	..	155.0	..	582.7	9.7	3.69	5.1	2.52	3.5	5.78	8.0
2006	748.6	12.4	326.8	437	277.6	..	16.11	..	148.2	..	572.2	9.4	3.74	5.0	2.61	3.5	5.94	7.9
2007	772.2	12.7	343.2	444	274.0	..	8.73	..	144.3	..	574.7	9.4	3.74	4.8	2.55	3.3	6.0	7.7
2008	794.4	12.9	360.8	454	270.0[P]	..	7.17	..	136.0	..	579.7	9.4	3.75	4.7	2.56	3.2	6.02	7.5
2007 March	184.4	12.3	81.9	444	31.2	..	1.69	..	38.9	..	159.3	10.6	0.91	4.9	0.64	3.4	1.47	7.9
June	189.8	12.5	82.6	435	76.6	..	2.37	..	37.2	..	138.0	9.1	0.99	5.2	0.66	3.5	1.53	8.0
Sept	202.8	13.2	90.5	446	117.7	..	2.96	..	36.7	..	129.9	8.4	0.94	4.6	0.63	3.1	1.50	7.4
Dec	195.3	12.7	88.1	451	48.4	..	1.71	..	31.4	..	147.5	9.6	0.90	4.6	0.62	3.2	1.50	7.6
2008 March	195.4	12.8	88.8	455	32.0[P]	..	1.25	..	35.5	..	155.6	10.2	0.95	4.9	0.66	3.4	1.53	7.8
June	198.2	12.5	89.1	449	73.7[P]	..	1.93	..	34.4	..	140.2	9.2	0.88	4.4	0.59	3.0	1.48	7.4
Sept	204.4	13.2	93.3	456	115.0[P]	..	2.46	..	33.9	..	130.3	8.4	0.97	4.7	0.67	3.3	1.47	7.2
Dec	196.4	12.7	89.6	456	50.1[P]	..	1.53	..	32.3	..	153.5	10.0	0.95	4.8	0.64	3.2	1.54	7.8
2009 March	189.7[P]	12.5[P]	87.8[P]	463[P]	..	..	0.98[P]	..	..	..	157.7[P]	10.4[P]	0.93[P]	4.9[P]	0.61[P]	3.2[P]	1.49[P]	7.8[P]
June	196.2[P]	12.7[P]	89.2[P]	455[P]	..	..	1.66[P]	..	..	..	131.7[P]	8.5[P]	0.94[P]	4.8[P]	0.63[P]	3.2[P]	1.52[P]	7.7[P]
Sept	202.8[P]	13.0[P]	94.5[P]	466[P]	..	..	2.28[P]	..	..	..	126.4[P]	8.1[P]	0.89[P]	4.4[P]	0.64[P]	3.1[P]	1.53[P]	7.5[P]
England and Wales																		
1976	584.3	11.8	53.8	92	358.6	57.7	:	:	126.7	10.1	598.5	12.1	8.34	14.3	5.66	9.7	10.45	17.7
1981	634.5	12.8	81.0	128	352.0	49.6	:	:	145.7	11.9	577.9	11.6	7.02	11.1	4.23	6.7	7.56	11.8
1986	661.0	13.2	141.3	214	347.9	43.6	:	:	153.9	12.9	581.2	11.6	6.31	9.6	3.49	5.3	6.37	9.6
1991	699.2	13.8	211.3	302	306.8	36.0	:	:	158.7	13.5	570.0	11.2	5.16	7.4	3.05	4.4	5.65	8.0
1996	649.5	12.6	232.7	358	279.0	30.9	:	:	157.1	13.8	560.1	10.9	3.99	6.1	2.68	4.1	5.62	8.6
1999	621.9	12.0	241.9	389	263.5	27.8	:	:	144.6	12.9	556.1	10.7	3.64	5.8	2.44	3.9	5.14	8.2
2000	604.4	11.6	238.6	395	268.0	27.8	:	:	141.1	12.7	535.7	10.3	3.40	5.6	2.34	3.9	4.96	8.2
2001	594.6	11.4	238.1	400	249.2	25.4	:	:	143.8	12.9	530.4	10.1	3.27	5.5	2.15	3.6	4.76	8.0
2002	596.1	11.3	242.0	406	255.6	25.6	:	:	147.7	13.3	533.5	10.1	3.17	5.3	2.14	3.6	4.96	8.3
2003	621.5	11.8	257.2	414	270.1	26.5	:	:	153.2	13.9	538.3	10.2	3.31	5.3	2.28	3.7	5.32	8.5
2004	639.7	12.1	269.7	422	273.1	26.2	:	:	153.0	14.0	512.5	9.7	3.27	5.1	2.24	3.5	5.25	8.2
2005	645.8	12.1	276.5	428	247.8	23.3	1.86[10]	5.8[10]	141.1	12.9	512.7	9.7	3.25	5.0	2.22	3.4	5.17	8.0
2006	669.6	12.5	291.4	435	239.5	22.0	14.94	1.4	132.2	12.1	502.6	9.4	3.37	5	2.35	3.5	5.36	8.0
2007	690.0	12.8	305.6	443	235.4	21.2	7.93	0.7	128.2	11.8	504.1	9.3	3.35	4.8	2.28	3.3	5.37	7.7
2008	708.7	13.0	320.8	453	233.0[P]	20.7[P]	6.56	0.6	121.8	11.2	509.1	9.4	3.37	4.8	2.30	3.2	5.38	7.6
2007 March	164.0	12.3	72.5	442	27.0	9.9	1.55	0.6	34.6	12.9	139.3	10.5	0.80	4.9	0.56	3.4	1.31	7.9
June	169.5	12.6	73.5	434	66.0	23.9	2.16	0.8	33.0	12.2	121.0	9.0	0.88	5.2	0.60	3.5	1.36	8.0
Sept	181.4	13.3	80.8	445	101.3	36.3	2.68	1.0	33.0	12.0	114.0	8.4	0.84	4.6	0.57	3.1	1.35	7.4
Dec	175.0	12.8	78.7	450	41.1	14.7	1.54	0.6	27.6	10.1	129.7	9.5	0.83	4.7	0.56	3.2	1.35	7.7
2008 March	173.8	12.8	78.6	452	27.5[P]	9.8[P]	1.13	0.4	31.9	11.9	136.4	10.1	0.86	4.9	0.60	3.4	1.38	7.9
June	177.0	13.1	79.4	449	63.6[P]	22.7[P]	1.79	0.6	30.6	11.4	123.1	9.1	0.79	4.5	0.53	3.0	1.33	7.4
Sept	182.4	13.3	83.1	455	99.1[P]	34.9[P]	2.24	0.8	30.4	11.2	114.3	8.4	0.87	4.8	0.60	3.3	1.32	7.2
Dec	175.5	12.8	79.8	455	42.9[P]	15.1[P]	1.39	0.5	28.8	10.6	135.3	9.9	0.85	4.8	0.57	3.3	1.36	7.7
2009 March	168.9[P]	12.5[P]	77.8[P]	461[P]	..	..	0.91[P]	0.3[P]	..	..	138.7[P]	10.3[P]	0.82[P]	4.9[P]	0.54[P]	3.2[P]	1.32[P]	7.8[P]
June	175.1[P]	12.8[P]	79.4[P]	454[P]	..	..	1.49[P]	0.5[P]	..	..	115.4[P]	8.4[P]	0.85[P]	4.9[P]	0.56[P]	3.2[P]	1.34[P]	7.6[P]
Sept	181.2[P]	13.1[P]	84.4[P]	466[P]	..	..	2.06[P]	0.7[P]	..	..	110.7[P]	8.0[P]	0.80[P]	4.4[P]	0.57[P]	3.1[P]	1.38[P]	7.6[P]

Notes:

Death figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993 to 2005. Death figures for 2006, 2007, 2008 and provisional death figures for 2009 relate to registrations.

Infant, neonatal and perinatal mortality rates for Northern Ireland take account of the non-resident livebirths.

Birth and death figures for England and also for Wales each exclude events for persons usually resident outside England and Wales. These events are, however, included in the totals for England and Wales combined, and for the United Kingdom.

All infant, neonatal and perinatal mortality data has now been revised to registration data.

From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, and for the United Kingdom.

Figures for divorces back to 2003 for England and Wales differ slightly to those previously published due to duplicate records being identified and removed from the datasets.

The birth and death rates for 2009 are based on 2008-based population projections for 2009.

Marriage, civil partnership and divorce rates for 2009 are based on 2008 marital status estimates.

The rates for Scotland have taken into account the revised marital status estimates for Scotland from 2002 to 2007.

Marital status estimates/rates are not available for Northern Ireland/UK.

1 Per 1,000 population of all ages.
2 Per 1,000 live births.
3 Persons marrying per 1,000 unmarried population aged 16 and over.
4 Persons forming a civil partnership per 1,000 unmarried population aged 16 and over.
5 Persons divorcing per 1,000 married population.
6 Deaths under 1 year.
7 Deaths under 4 weeks.
8 Stillbirths and deaths under 1 week.
9 Per 1,000 live births and stillbirths.
10 The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK – see Notes to tables.
p provisional.

Table 2.1 continued **Vital statistics summary**

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
England																			
1976		550.4	11.8	50.8	92	339.0	..	:	:	..	..	560.3	12.0	7.83	14.2	5.32	9.7	9.81	17.6
1981		598.2	12.8	76.9	129	332.2	..	:	:	..	..	541.0	11.6	6.50	10.9	3.93	6.6	7.04	11.7
1986		623.6	13.2	133.5	214	328.4	..	:	:	146.0	..	544.5	11.6	5.92	9.50	3.27	5.2	5.98	9.5
1991		660.8	13.8	198.9	301	290.1	..	:	:	150.1	..	534.0	11.2	4.86	7.30	2.87	4.3	5.33	8.0
1996		614.2	12.7	218.2	355	264.2	..	:	:	148.7	..	524.0	10.8	3.74	6.10	2.53	4.1	5.36	8.7
1999		589.5	12.0	226.7	385	249.5	..	:	:	137.0	..	519.6	10.8	3.38	5.7	2.29	3.9	4.86	8.2
2000		572.8	11.7	223.8	391	253.8	..	:	:	133.9	..	501.0	10.2	3.20	5.6	2.21	3.9	4.70	8.2
2001		563.7	11.4	223.3	396	236.2	..	:	:	136.4	..	496.1	10.0	3.06	5.4	2.03	3.6	4.51	8.0
2002		565.7	11.4	227.0	401	242.1	..	:	:	140.2	..	499.1	10.1	3.00	5.3	2.03	3.6	4.71	8.3
2003		589.9	11.8	241.4	409	255.6	..	:	:	145.5	..	503.4	10.1	3.15	5.3	2.17	3.7	5.06	8.5
2004		607.2	12.1	253.1	417	258.2	..	:	:	145.1	..	479.2	9.6	3.06	5.1	2.01	3.5	4.97	8.1
2005		613.0	12.1	259.4	423	233.8	..	1.79 [10]	..	134.2	..	479.4	9.6	3.08	5.0	2.11	3.4	4.91	8.0
2006		635.7	12.5	273.5	430	226.0	..	14.38	..	125.3	..	470.3	9.3	3.19	5.0	2.24	3.5	5.11	8.0
2007		655.4	12.8	287.0	438	222.5	..	7.64	..	121.6	..	470.7	9.2	3.13	4.8	2.15	3.3	5.10	7.7
2008		672.8	13.1	300.9	447	220.1[P]	..	6.28	..	115.5	..	475.8	9.2	3.19	4.7	2.18	3.2	5.09	7.5
2007	March	155.9	12.4	68.1	437	25.6	..	1.49	..	32.7	..	130.3	10.3	0.74	4.7	0.52	3.3	1.23	7.8
	June	161.0	12.6	69.0	429	62.4	..	2.06	..	31.3	..	112.9	8.9	0.84	5.2	0.57	3.5	1.30	8.0
	Sept	172.2	13.4	75.9	441	95.6	..	2.60	..	31.3	..	106.4	8.3	0.79	4.6	0.54	3.1	1.29	7.5
	Dec	166.3	12.9	74.0	445	38.9	..	1.48	..	26.2	..	121.2	9.4	0.76	4.6	0.53	3.2	1.28	7.6
2008	March	165.0	12.9	73.7	447	25.9[P]	..	1.08	..	30.3	..	127.6	10.0	0.82	4.9	0.57	3.4	1.30	7.8
	June	167.9	13.1	74.4	443	60.0[P]	..	1.72	..	29.1	..	115.1	9.0	0.74	4.4	0.50	3.0	1.26	7.5
	Sept	173.2	13.4	77.9	450	93.5[P]	..	2.14	..	28.8	..	106.7	8.2	0.82	4.7	0.57	3.3	1.24	7.1
	Dec	166.7	12.9	74.9	449	40.6[P]	..	1.33	..	27.3	..	126.4	9.8	0.81	4.8	0.54	3.3	1.29	7.7
2009	March	160.5[P]	12.6[P]	73.1[P]	455[P]	..	..	0.89[P]	..	..	..	129.6[P]	10.1[P]	0.79[P]	4.9[P]	0.52[P]	3.2[P]	1.27[P]	7.9[P]
	June	166.4[P]	12.9[P]	74.6[P]	448[P]	..	..	1.41[P]	..	..	..	108.2[P]	8.4[P]	0.80[P]	4.8[P]	0.53[P]	3.2[P]	1.27[P]	7.6[P]
	Sept	172.2[P]	13.2[P]	79.3[P]	461[P]	..	..	1.97[P]	..	..	..	103.5[P]	7.9[P]	0.74[P]	4.3[P]	0.53[P]	3.1[P]	1.30[P]	7.5[P]
Wales																			
1976		33.4	11.9	2.9	86	19.5	..	:	:	..	..	36.3	13.0	0.46	13.7	0.32	9.6	0.64	19.0
1981		35.8	12.7	4.0	112	19.8	..	:	:	..	..	35.0	12.4	0.45	12.6	0.29	8.1	0.51	14.1
1986		37.0	13.2	7.8	211	19.5	..	:	:	7.8	..	34.7	12.3	0.35	9.5	0.21	5.6	0.38	10.3
1991		38.1	13.3	12.3	323	16.6	..	:	:	8.4	..	34.1	11.9	0.25	6.6	0.16	4.1	0.30	7.9
1996		34.9	12.1	14.4	412	14.8	..	:	:	8.4	..	34.6	12.0	0.20	5.6	0.13	3.6	0.26	7.5
1999		32.1	11.1	14.8	461	14.0	..	:	:	7.5	..	35.0	12.1	0.21	6.4	0.13	4.1	0.25	7.8
2000		31.3	10.8	14.8	472	14.1	..	:	:	7.2	..	33.3	11.5	0.16	5.2	0.11	3.6	0.23	7.3
2001		30.6	10.5	14.8	483	13.0	..	:	:	7.4	..	33.0	11.3	0.17	5.5	0.11	3.4	0.23	7.5
2002		30.2	10.3	15.0	497	13.5	..	:	:	7.6	..	33.2	11.4	0.14	4.7	0.10	3.1	0.24	7.7
2003		31.4	10.7	15.8	503	14.5	..	:	:	7.7	..	33.7	11.5	0.13	4.1	0.10	3.1	0.24	7.5
2004		32.3	11.0	16.6	513	14.9	..	:	:	7.9	..	32.1	10.9	0.17	4.9	0.11	3.3	0.26	7.9
2005		32.6	11.0	17.1	524	14.0	..	0.07 [10]	..	7.2	..	32.1	10.9	0.14	5.1	0.09	2.9	0.24	7.4
2006		33.6	11.3	17.8	530	13.5	..	0.56	..	7.0	..	31.1	10.5	0.14	4.1	0.09	2.8	0.23	6.9
2007		34.4	11.5	18.5	538	12.9	..	0.29	..	6.7	..	32.1	10.8	0.18	5.3	0.12	3.4	0.25	7.3
2008		35.7	11.9	19.8	556	12.9[P]	..	0.28	..	6.3	..	32.1	10.7	0.15	4.1	0.11	3.0	0.24	6.7
2007	March	8.1	11.0	4.3	536	1.3	..	0.06	..	1.8	..	8.8	11.9	0.05	6.3	0.03	3.7	0.07	9.0
	June	8.5	11.4	4.5	530	3.6	..	0.10	..	1.8	..	7.9	10.6	0.04	4.5	0.02	2.8	0.06	6.8
	Sept	9.1	12.1	4.9	541	5.7	..	0.08	..	1.7	..	7.3	9.7	0.04	4.4	0.03	2.8	0.05	5.7
	Dec	8.7	11.6	4.8	547	2.2	..	0.06	..	1.4	..	8.3	11.0	0.05	6.1	0.04	4.1	0.07	7.9
2008	March	8.7	11.8	4.8	552	1.6[P]	..	0.06	..	1.6	..	8.6	11.5	0.04	4.1	0.03	3.0	0.06	7.3
	June	9.0	12.0	5.0	555	3.5[P]	..	0.07	..	1.5	..	7.7	10.4	0.04	4.2	0.03	3.2	0.06	6.4
	Sept	9.2	12.2	5.1	556	5.5[P]	..	0.10	..	1.6	..	7.3	9.6	0.04	3.8	0.03	2.9	0.06	6.3
	Dec	8.8	11.6	4.9	561	2.3[P]	..	0.06	..	1.5	..	8.5	11.3	0.04	4.3	0.03	3.0	0.06	6.9
2009	March	8.4[P]	11.4[P]	4.7[P]	559[P]	..	..	0.03[P]	..	..	..	8.9[P]	12.0[P]	0.03[P]	3.1[P]	0.02[P]	2.0[P]	0.05[P]	5.3[P]
	June	8.6[P]	11.5[P]	4.8[P]	561[P]	..	..	0.08[P]	..	..	..	7.3[P]	9.7[P]	0.04[P]	4.5[P]	0.03[P]	3.0[P]	0.07[P]	7.6[P]
	Sept	8.9[P]	11.8[P]	5.1[P]	571[P]	..	..	0.09[P]	..	..	..	6.9[P]	9.2[P]	0.05[P]	5.4[P]	0.03[P]	3.5[P]	0.08[P]	8.6[P]
Scotland																			
1976		64.9	12.5	6.0	93	37.5	53.8	:	:	8.1	6.5	65.3	12.5	0.96	14.8	0.67	10.3	1.20	18.3
1981		69.1	13.4	8.5	122	36.2	47.5	:	:	9.9	8.0	63.8	12.3	0.78	11.3	0.47	6.9	0.81	11.6
1986		65.8	12.9	13.6	206	35.8	42.9	:	:	12.8	10.7	63.5	12.4	0.58	8.8	0.34	5.2	0.67	10.2
1991		67.0	13.2	19.5	291	33.8	39.0	:	:	12.4	10.6	61.0	12.0	0.47	7.1	0.29	4.6	0.58	8.6
1996		59.3	11.6	21.4	360	30.2	33.2	:	:	12.3	10.9	60.7	11.9	0.37	6.2	0.23	3.9	0.55	9.2
1999		55.1	10.9	22.7	412	29.9	31.5	:	:	11.9	10.9	60.3	11.9	0.28	5.0	0.18	3.3	0.42	7.6
2000		53.1	10.5	22.6	426	30.4	31.6	:	:	11.1	10.3	57.8	11.4	0.31	5.7	0.21	4.0	0.45	8.4
2001		52.5	10.4	22.8	433	29.6	31.0	:	:	10.7	9.7	57.4	11.3	0.29	5.5	0.20	3.8	0.45	8.5
2002		51.3	10.1	22.5	440	29.8	30.8	:	:	10.9	10.0	58.1	11.5	0.27	5.3	0.16	3.2	0.39	7.6
2003		52.4	10.4	23.9	455	30.8	31.3	:	:	10.9	10.2	58.5	11.6	0.27	5.1	0.18	3.4	0.42	8.0
2004		54.0	10.6	25.2	467	32.2	32.1	:	:	11.3	10.5	56.2	11.1	0.27	4.9	0.17	3.1	0.44	8.1
2005		54.4	10.7	25.6	471	30.9	30.3	0.08 [10]	2.5 [10]	10.9	10.3	55.7	11.0	0.28	5.2	0.19	3.5	0.42	7.7
2006		55.7	10.9	26.6	477	29.9	28.7	1.05	1.0	13.1	12.3	55.1	10.8	0.25	4.5	0.17	3.1	0.42	7.4
2007		57.8	11.2	28.4	491	29.9	28.1	0.69	0.6	12.8	12.2	56.0	10.9	0.27	4.7	0.19	3.2	0.46	7.8
2008		60.0	11.6	30.1	501	28.9	26.6	0.53	0.5	11.5	11.0	55.7	10.8	0.25	4.2	0.17	2.8	0.45	7.4

See notes on first page of table.

Table 2.1 continued **Vital statistics summary**

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
2007	March	14.2	11.2	7.1	501	3.3	12.7	0.11	0.4	3.3	12.8	15.8	12.5	0.07	4.9	0.05	3.6	0.12	8.1
	June	14.3	11.1	6.9	482	8.1	30.7	0.18	0.7	3.3	12.7	13.4	10.4	0.08	5.3	0.05	3.4	0.12	8.6
	Sept	14.9	11.5	7.2	485	12.6	47.1	0.25	0.9	3.0	11.4	12.6	9.7	0.07	4.6	0.05	3.0	0.11	7.1
	Dec	14.4	11.1	7.1	497	5.8	21.6	0.15	0.6	3.1	11.8	14.2	10.9	0.06	3.9	0.04	2.9	0.11	7.5
2008	March	15.1	11.8	7.7	510	3.4	12.7	0.10	0.4	2.8	10.7	15.1	11.7	0.06	3.9	0.04	2.8	0.11	7.0
	June	14.9	11.6	7.3	488	7.9	29.2	0.11	0.4	3.0	11.8	13.5	10.5	0.06	4.0	0.04	2.5	0.11	7.5
	Sept	15.5	11.9	7.7	498	11.9	43.5	0.20	0.7	2.8	10.9	12.6	9.7	0.07	4.8	0.05	3.4	0.11	6.9
	Dec	14.5	11.2	7.4	507	5.7	20.7	0.12	0.4	2.8	10.8	14.5	11.2	0.06	4.1	0.04	2.4	0.12	8.2
2009	March	14.5[P]	11.3[P]	7.4[P]	512[P]	3.2[P]	11.8[P]	0.05[P]	0.2[P]	..	..	14.8[P]	11.6[P]	0.06[P]	4.3[P]	0.04[P]	2.9[P]	0.10[P]	6.7[P]
	June	14.9[P]	11.5[P]	7.4[P]	495[P]	7.9[P]	29.1[P]	0.15[P]	0.5[P]	..	..	12.8[P]	9.9[P]	0.06[P]	4.0[P]	0.05[P]	3.2[P]	0.13[P]	8.9[P]
	Sept	15.3[P]	11.7[P]	7.6[P]	499[P]	11.2[P]	41.1[P]	0.19[P]	0.07[P]	..	..	12.4[P]	9.5[P]	0.06[P]	3.9[P]	0.04[P]	2.6[P]	0.10[P]	6.5[P]
Northern Ireland																			
1976		26.4	17.3	1.3	50	9.9	..	:	:	0.6	..	17.0	11.2	0.48	18.3	0.35	13.3	0.59	22.3
1981		27.2	17.6	1.9	70	9.6	45.4	:	:	1.4	4.2	16.3	10.6	0.36	13.2	0.23	8.3	0.42	15.3
1986		28.0	17.8	3.6	128	10.2	..	:	:	1.5	..	16.1	10.3	0.36	13.2	0.23	8.3	0.42	15.3
1991		26.0	16.2	5.3	203	9.2	..	:	:	2.3	..	15.1	9.4	0.19	7.4	0.12	4.6	0.22	8.4
1996		24.4	14.7	6.3	260	8.3	..	:	:	2.3	..	15.2	9.2	0.14	5.8	0.09	3.7	0.23	9.4
1999		23.0	13.7	7.0	303	7.6	..	:	:	2.3	..	15.7	9.3	0.15	6.4	0.11	4.8	0.23	10.0
2000		21.5	12.8	6.8	318	7.6	..	:	:	2.4	..	14.9	8.9	0.11	5.0	0.08	3.8	0.16	7.2
2001		22.0	13.0	7.1	325	7.3	..	:	:	2.4	..	14.5	8.6	0.13	6.0	0.10	4.4	0.19	8.4
2002		21.4	12.6	7.2	335	7.6	..	:	:	2.2	..	14.6	8.6	0.10	4.6	0.07	3.4	0.19	8.7
2003		21.6	12.7	7.4	344	7.8	..	:	:	2.3	..	14.5	8.5	0.12	5.2	0.09	3.9	0.18	8.0
2004		22.3	13.0	7.7	345	8.3	..	:	:	2.5	..	14.4	8.4	0.12	5.3	0.08	3.6	0.19	8.0
2005		22.3	12.9	8.1	363	8.1	..	0.01[10]	..	2.4	..	14.2	8.3	0.14	6.1	0.11	4.9	0.19	8.1
2006		23.3	13.4	8.8	380	8.3	..	0.12	..	2.6	..	14.5	8.4	0.12	5.1	0.09	3.8	0.17	6.9
2007		24.5	13.9	9.3	379	8.7	..	0.11	..	2.9	..	14.6	8.3	0.12	4.9	0.08	3.2	0.17	6.9
2008		25.6	14.4	10.0	389	8.5	..	0.09	..	2.8	..	14.9	8.4	0.12	4.7	0.10	3.6	0.19	7.4
2007	March	6.1	14.2	2.4	383	1.0	..	0.02	..	0.9	..	4.2	9.7	0.04	6.7	0.03	4.6	0.05	7.6
	June	6.0	13.7	2.2	365	2.4	..	0.03	..	0.7	..	3.6	8.2	0.03	5.1	0.02	2.9	0.04	6.7
	Sept	6.5	14.5	2.5	386	3.8	..	0.04	..	0.7	..	3.3	7.3	0.03	4.6	0.02	3.2	0.05	7.0
	Dec	5.9	13.2	2.2	380	1.6	..	0.02	..	0.6	..	3.6	8.1	0.02	3.3	0.01	2.2	0.04	6.5
2008	March	6.5	14.8	2.6	396	1.1	..	0.02	..	0.8	..	4.1	9.4	0.03	4.6	0.03	3.9	0.05	7.3
	June	6.3	14.3	2.4	384	2.2	..	0.02	..	0.7	..	3.6	8.2	0.03	4.6	0.02	3.5	0.04	6.4
	Sept	6.5	14.5	2.5	386	3.6	..	0.02	..	0.6	..	3.4	7.7	0.03	3.8	0.02	2.7	0.05	7.5
	Dec	6.3	14.2	2.5	389	1.6	..	0.02	..	0.7	..	3.7	8.4	0.04	5.7	0.03	4.3	0.05	8.2
2009	March	6.3[P]	14.3[P]	2.6[P]	409[P]	0.9[P]	..	0.01[P]	..	..	..	4.2[P]	9.5[P]	0.04[P]	6.5[P]	0.03[P]	4.8[P]	0.07[P]	10.0[P]
	June	6.3[P]	14.1[P]	2.4[P]	389[P]	2.3[P]	..	0.02[P]	..	..	..	3.4[P]	7.7[P]	0.03[P]	4.8[P]	0.02[P]	3.4[P]	0.04[P]	6.0[P]
	Sept	6.3[P]	14.0[P]	2.5[P]	397[P]	3.2[P]	..	0.03[P]	..	..	..	3.2[P]	7.2[P]	0.04[P]	5.6[P]	0.03[P]	4.5[P]	0.05[P]	8.0[P]

See notes on first page of table.

Table 2.2 Key demographic and health indicators

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

Year and quarter	Population	Live births	Deaths	Dependency ratio: Children[1]	Dependency ratio: Elderly[2]	Live births: TFR[3]	Live births: Standardised mean age of mother at birth (years)[4]	Live births: Unstandardised mean age of mother at birth (years)[5]	Live births: Outside marriage as percentage of total live births	Age-standardised mortality rate[6]	Period expectation of life (in years) at birth[7]: Males	Period expectation of life (in years) at birth[7]: Females	Infant mortality rate[8]
United Kingdom													
1976	56,216.1	675.5	680.8	42.1	29.5	1.74	26.7	26.4	*9.0*	10,486	..	..	14.5
1981	56,357.5	730.7	658.0	37.1	29.7	1.82	27.0	26.8	*12.5*	9,506	70.8	76.8	11.2
1986	56,683.8	754.8	660.7	33.5	29.7	1.78	27.4	27.0	*20.4*	8,914	71.9	77.7	9.5
1991	57,438.7	792.3	646.2	33.2	30.0	1.82	27.7	27.7	*29.8*	8,168	73.2	78.7	7.4
1996	58,164.4	733.2	636.0	33.9	30.0	1.73	28.2	28.6	*35.5*	7,584	74.2	79.4	6.1
2001	59,113.5	669.1	602.3	32.6	29.8	1.63	28.6	29.2	*40.1*	6,807	75.6	80.4	5.5
2002	59,323.5	668.8	606.2	32.2	29.8	1.64	28.7	29.3	*40.6*	6,765	75.9	80.5	5.3
2003	59,557.3	695.6	612.0	31.8	29.9	1.71	28.8	29.4	*41.5*	6,758	76.2	80.7	5.3
2004	59,845.8	716.0	583.1	31.4	30.0	1.77	28.9	29.4	*42.3*	6,394	76.5	80.9	5.1
2005	60,238.4	722.5	582.7	31.0	30.0	1.78	29.1	29.5	*42.9*	6,268	76.9	81.3	5.1
2006	60,587.3	748.6	572.2	30.6	30.1	1.84	29.1	29.5	*43.7*	6,067	77.2	81.5	5.0
2007	60,975.4	772.2	574.7	30.4	30.5	1.90	29.3	29.5	*44.4*	5,966	77.4	81.6	4.8
2008	61,383.2	794.4	579.7	30.2	31.0	1.96	29.3	29.5	*45.4*	5,908	..	..	4.7
England													
1976	46,659.9	550.4	560.3	41.4	29.7	1.70	26.5	26.4	*9.2*	10,271	..	..	14.2
1981	46,820.8	598.2	541.0	36.4	29.9	1.79	27.0	26.8	*12.9*	9,298	71.1	77.0	10.9
1986	47,187.6	623.6	544.5	33.1	29.8	1.76	27.4	27.0	*21.4*	8,725	72.2	77.9	9.5
1991	47,875.0	660.8	534.0	32.9	30.0	1.81	27.7	27.7	*30.1*	8,017	73.4	78.9	7.3
1996	48,519.1	614.2	524.0	33.7	30.0	1.73	28.2	28.7	*35.5*	7,414	74.5	79.6	6.1
2001	49,449.7	563.7	496.1	32.5	29.7	1.63	28.6	29.3	*39.6*	6,650	75.9	80.6	5.4
2002	49,652.3	565.7	499.1	32.1	29.7	1.65	28.7	29.4	*40.1*	6,603	76.1	80.7	5.2
2003	49,866.2	589.9	503.4	31.8	29.8	1.73	28.9	29.4	*40.9*	6,602	76.5	80.9	5.3
2004	50,110.7	607.2	479.2	31.4	29.8	1.78	29.0	29.5	*41.7*	6,232	76.8	81.1	5.0
2005	50,465.6	613.0	479.4	30.9	29.9	1.79	29.1	29.5	*42.3*	6,110	77.2	81.5	5.0
2006	50,762.9	635.7	470.3	30.6	29.9	1.86	29.2	29.5	*43.0*	5,916	77.5	81.7	5.0
2007	51,092.0	655.4	470.7	30.4	30.3	1.92	29.3	29.6	*43.8*	5,792	77.7	81.9	4.8
2008	51,446.2	672.8	475.8	30.3	30.8	1.97	29.3	29.5	*44.7*	5,748	..	..	4.7
Wales													
1976	2,799.3	33.4	36.3	42.0	30.9	1.78	26.2	26.0	*8.6*	10,858	..	..	13.7
1981	2,813.5	35.8	35.0	37.6	31.6	1.87	26.7	26.6	*11.2*	9,846	70.4	76.4	12.6
1986	2,810.9	37.0	34.7	34.3	32.5	1.86	26.9	26.5	*21.1*	9,043	71.6	77.5	9.5
1991	2,873.0	38.1	34.1	34.4	33.5	1.88	27.1	27.0	*32.3*	8,149	73.1	78.8	6.6
1996	2,891.3	34.9	34.6	34.9	33.7	1.81	27.5	27.8	*41.2*	7,758	73.8	79.1	5.6
2001	2,910.2	30.6	33.0	33.7	33.6	1.66	27.8	28.3	*48.3*	7,017	75.3	80.0	5.4
2002	2,919.8	30.2	33.2	33.3	33.7	1.64	28.0	28.4	*49.7*	6,953	75.5	80.1	4.5
2003	2,931.1	31.4	33.7	32.8	33.8	1.73	28.1	28.5	*50.3*	6,984	75.8	80.3	4.3
2004	2,946.4	32.3	32.1	32.3	33.9	1.78	28.2	28.5	*51.3*	6,588	76.1	80.6	4.9
2005	2,953.6	32.6	32.1	31.8	34.1	1.81	28.4	28.5	*52.4*	6,442	76.6	80.9	4.1
2006	2,965.9	33.6	31.1	31.4	34.3	1.86	28.5	28.6	*53.0*	6,190	76.7	81.1	4.1
2007	2,980.0	34.4	32.1	31.0	34.9	1.90	28.6	28.6	*53.8*	6,307	76.9	81.2	5.3
2008	2,993.4	35.7	32.1	30.7	35.5	1.96	28.7	28.5	*55.6*	6,147	..	..	4.1

Notes: Death figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993 to 2005.
Death figures for 2006 onwards relate to registrations.
Birth and death figures for England and also for Wales each exclude events for persons usually resident outside England and Wales (apart from life expectancy figures – where those occurring in England and Wales are assigned to England). These events are, however, included in the total for the United Kingdom.
From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, and for the United Kingdom.
Birth and death rates for 2009 have been calculated using 2008-based population projections for 2009.
Infant mortality rates for Northern Ireland have now been amended to take account of the non-resident live births.

1 Percentage of children under 16 to working-age population (males 16–64 and females 16–59).
2 Percentage of males 65 and over and females 60 and over to working-age population (males 16–64 and females 16–59).
3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPFR (total period fertility rate).
4 Standardised to take account of the age structure of the population.
5 Unstandardised and therefore takes no account of the age structure of the population.
6 Per million population.The age-standardised mortality rate makes allowances for changes in the age structure of the population. See Notes to tables.
7 All countries: figures for all years based on registered deaths. A minor methodological change was introduced for the 2006 figures to ensure consistency with population estimates of the very elderly for England and Wales. The effect on calculated life expectancies is marginal.
8 Deaths at age under one year per 1,000 live births. All infant mortality data has now been revised to registration data.
p provisional

Table 2.2 continued **Key demographic and health indicators**

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

Year and quarter	Population	Live births	Deaths	Dependency ratio: Children[1]	Dependency ratio: Elderly[2]	Live births: TFR[3]	Live births: Standardised mean age of mother at birth (years)[4]	Live births: Unstandardised mean age of mother at birth (years)[5]	Live births: Outside marriage as percentage of total live births	Age-standardised mortality rate[6]	Period expectation of life (in years) at birth[7]: Males	Period expectation of life (in years) at birth[7]: Females	Infant mortality rate[8]
Scotland													
1976	5,233.4	64.9	65.3	44.7	28.4	1.79	26.4	26.0	*9.3*	11,675	..	..	14.8
1981	5,180.2	69.1	63.8	38.2	28.4	1.84	26.8	26.3	*12.2*	10,849	69.1	75.3	11.3
1986	5,111.8	65.8	63.5	33.6	28.1	1.67	27.1	26.6	*20.6*	10,120	70.2	76.2	8.8
1991	5,083.3	67.0	61.0	32.4	28.9	1.69	27.5	27.4	*29.1*	9,216	71.4	77.1	7.1
1996	5,092.2	59.3	60.7	32.3	29.2	1.56	28.0	28.5	*36.0*	8,791	72.2	77.9	6.2
2001	5,064.2	52.5	57.4	30.8	30.0	1.49	28.5	29.2	*43.3*	7,930	73.3	78.8	5.5
2002	5,054.8	51.3	58.1	30.3	30.2	1.48	28.6	29.2	*44.0*	7,955	73.5	78.9	5.3
2003	5,057.4	52.4	58.5	29.9	30.3	1.54	28.7	29.3	*45.5*	7,921	73.8	79.1	5.1
2004	5,078.4	54.0	56.2	29.5	30.5	1.60	28.9	29.4	*46.7*	7,536	74.2	79.3	4.9
2005	5,094.8	54.4	55.7	29.1	30.6	1.62	29.0	29.5	*47.1*	7,349	74.6	79.6	5.2
2006	5,116.9	55.7	55.1	28.7	30.6	1.67	29.1	29.5	*47.7*	7,161	74.8	79.7	4.5
2007	5,144.2	57.8	56.0	28.4	31.0	1.73	29.2	29.4	*49.1*	7,150	75.0	79.9	4.7
2008	5,168.5	60.0	55.7	28.2	31.4	1.80	29.3	29.4	*50.1*	7,006	..	..	4.2
Northern Ireland													
1976	1,523.5	26.4	17.0	56.1	25.3	2.68	27.8	27.4	*5.0*	11,746	..	..	18.3
1981	1,543.0	27.2	16.3	50.6	25.3	2.59	28.1	27.5	*7.0*	10,567	69.2	75.5	13.2
1986	1,573.5	28.0	16.1	46.1	25.5	2.45	28.1	27.5	*12.8*	10,071	70.9	77.1	13.2
1991	1,607.3	26.0	15.1	44.1	26.1	2.16	28.3	28.0	*20.3*	8,303	72.6	78.4	7.4
1996	1,661.8	24.4	15.2	41.8	25.5	1.95	28.7	28.8	*26.0*	7,742	73.8	79.2	5.8
2001	1,689.3	22.0	14.5	38.6	25.5	1.80	29.1	29.4	*32.5*	6,976	75.2	80.1	6.0
2002	1,696.6	21.4	14.6	37.9	25.7	1.77	29.2	29.4	*33.5*	6,930	75.6	80.4	4.6
2003	1,702.6	21.6	14.5	37.2	25.9	1.81	29.2	29.5	*34.4*	6,743	75.8	80.6	5.2
2004	1,710.3	22.3	14.4	36.4	26.2	1.87	29.4	29.7	*34.5*	6,609	76.0	80.8	5.3
2005	1,724.4	22.3	14.2	35.8	26.3	1.87	29.5	29.7	*36.3*	6,418	76.1	81.0	6.1
2006	1,741.6	23.3	14.5	35.3	26.4	1.94	29.6	29.7	*38.0*	6,397	76.2	81.2	5.1
2007	1,759.1	24.5	14.6	34.9	26.6	2.02	29.8	29.8	*37.9*	6,321	76.3	81.2	4.9
2008	1,775.0	25.6	14.9	34.7	26.9	2.11	29.8	29.7	*38.9*	6,299	..	..	4.7

See notes on first page of table.

Table 3.1 Live births: age of mother

England and Wales

Numbers (thousands), rates, mean age and TFRs

Year and quarter	Age of mother at birth: All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	Mean age[1] (years)	Age of mother at birth: All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	Mean age[2] (years)	TFR[3]
	Total live births (numbers)								Age-specific fertility rates[4]								
1961	811.3	59.8	249.8	248.5	152.3	77.5	23.3	27.6	89.2	37.3	172.6	176.9	103.1	48.1	15.0	27.4	2.77
1964(max)	876.0	76.7	276.1	270.7	153.5	75.4	23.6	27.2	92.9	42.5	181.6	187.3	107.7	49.8	13.7	27.3	2.93
1966	849.8	86.7	285.8	253.7	136.4	67.0	20.1	26.8	90.5	47.7	176.0	174.0	97.3	45.3	12.5	27.1	2.75
1971	783.2	82.6	285.7	247.2	109.6	45.2	12.7	26.2	83.5	50.6	152.9	153.2	77.1	32.8	8.7	26.6	2.37
1976	584.3	57.9	182.2	220.7	90.8	26.1	6.5	26.4	60.4	32.2	109.3	118.7	57.2	18.6	4.8	26.5	1.71
1977(min)	569.3	54.5	174.5	207.9	100.8	25.5	6.0	26.5	58.1	29.4	103.7	117.5	58.6	18.2	4.4	26.6	1.66
1981	634.5	56.6	194.5	215.8	126.6	34.2	6.9	26.8	61.3	28.1	105.3	129.1	68.6	21.7	4.9	27.0	1.79
1986	661.0	57.4	192.1	229.0	129.5	45.5	7.6	27.0	60.6	30.1	92.7	123.8	78.0	24.6	4.8	27.4	1.77
1991	699.2	52.4	173.4	248.7	161.3	53.6	9.8	27.7	63.6	33.0	89.3	119.4	86.7	32.1	5.3	27.7	1.82
1992	689.7	47.9	163.3	244.8	166.8	56.7	10.2	27.9	63.6	31.7	86.1	117.6	87.4	33.4	5.8	27.8	1.80
1993	673.5	45.1	152.0	236.0	171.1	58.8	10.5	28.1	62.7	30.9	82.5	114.4	87.4	34.1	6.2	27.9	1.76
1994	664.7	42.0	140.2	229.1	179.6	63.1	10.7	28.4	62.0	28.9	79.0	112.2	89.4	35.8	6.4	28.1	1.75
1995	648.1	41.9	130.7	217.4	181.2	65.5	11.3	28.5	60.5	28.5	76.4	108.4	88.3	36.3	6.8	28.2	1.72
1996	649.5	44.7	125.7	211.1	186.4	69.5	12.1	28.6	60.6	29.7	77.0	106.6	89.8	37.5	7.2	28.2	1.74
1997	643.1	46.4	118.6	202.8	187.5	74.9	12.9	28.8	60.0	30.2	76.0	104.3	89.8	39.4	7.6	28.3	1.73
1998	635.9	48.3	113.5	193.1	188.5	78.9	13.6	28.9	59.2	30.9	74.9	101.5	90.6	40.4	7.9	28.3	1.72
1999	621.9	48.4	110.7	181.9	185.3	81.3	14.3	29.0	57.8	30.9	73.0	98.3	89.6	40.6	8.1	28.4	1.70
2000	604.4	45.8	107.7	170.7	180.1	85.0	15.1	29.1	55.9	29.3	70.0	94.3	87.9	41.4	8.3	28.5	1.65
2001	594.6	44.2	108.8	159.9	178.9	86.5	16.3	29.2	54.7	28.0	69.0	91.7	88.0	41.5	8.8	28.6	1.63
2002	596.1	43.5	110.9	153.4	180.5	90.5	17.3	29.3	54.7	27.1	69.1	91.5	89.9	43.0	9.1	28.7	1.65
2003	621.5	44.2	116.6	156.9	187.2	97.4	19.1	29.4	56.8	26.9	71.3	95.8	94.9	46.4	9.8	28.8	1.73
2004	639.7	45.1	121.1	160.0	190.6	102.2	20.8	29.4	58.2	26.9	72.8	97.6	99.6	48.8	10.4	28.9	1.78
2005	645.8	44.8	122.1	164.3	188.2	104.1	22.2	29.5	58.3	26.3	71.6	97.9	100.7	50.3	10.8	29.1	1.79
2006	669.6	45.5	127.8	172.6	189.4	110.5	23.7	29.5	60.2	26.6	73.2	100.6	104.8	53.8	11.4	29.1	1.86
2007	690.0	44.8	130.8	182.6	191.1	115.4	25.4	29.5	62.0	26.0	73.5	104.0	110.2	56.9	12.0	29.3	1.92
2008	708.7	44.7	136.0	193.0	192.5	116.2	26.4	29.5	63.8	26.0	74.6	108.4	113.1	58.4	12.6	29.3	1.97
2004 March	155.2	11.0	29.3	38.7	46.6	24.7	4.9	29.4	56.8	26.5	70.8	95.0	97.9	47.4	9.8	28.9	1.74
June	157.4	10.7	29.3	39.4	47.7	25.2	5.0	29.5	57.6	25.7	70.9	96.6	100.4	48.5	10.1	29.0	1.76
Sept	165.4	11.7	31.4	41.6	49.0	26.3	5.4	29.4	59.9	27.7	75.0	101.0	102.0	50.1	10.7	28.9	1.83
Dec	161.7	11.6	31.1	40.3	47.2	26.0	5.5	29.4	58.5	27.6	74.3	97.7	98.2	49.4	10.9	28.9	1.79
2005 March	154.3	10.9	29.3	38.9	45.0	24.7	5.4	29.4	56.5	26.0	69.6	94.0	97.6	48.5	10.7	29.0	1.74
June	159.8	10.7	29.6	40.3	47.5	26.2	5.4	29.5	57.8	25.3	69.7	96.2	101.9	50.8	10.6	29.1	1.78
Sept	170.2	11.9	32.5	43.7	49.4	26.9	5.7	29.4	60.9	27.6	75.7	103.2	104.9	51.6	11.1	29.0	1.88
Dec	161.7	11.3	30.7	41.4	46.3	26.3	5.7	29.4	57.9	26.3	71.3	97.9	98.3	50.4	11.0	29.0	1.78
2006 March	159.5	11.1	30.5	40.7	45.3	26.3	5.6	29.5	58.2	26.3	70.9	96.1	101.6	52.0	11.0	29.1	1.79
June	166.2	11.4	31.2	42.9	47.6	27.1	5.9	29.5	60.0	26.6	71.8	100.4	105.7	53.0	11.3	29.1	1.85
Sept	174.9	12.0	33.5	45.6	49.0	28.9	6.0	29.4	62.4	27.7	76.1	105.4	107.5	55.9	11.4	29.1	1.93
Dec	169.0	11.1	32.6	43.5	47.5	28.1	6.2	29.5	60.3	25.7	74.0	100.5	104.3	54.4	11.8	29.2	1.86
2007 March	164.0	10.9	31.1	42.7	45.7	27.4	6.2	29.5	59.8	25.5	70.9	98.6	106.9	54.8	12.0	29.3	1.85
June	169.5	10.7	31.4	44.6	47.8	28.9	6.2	29.6	61.1	25.0	70.8	101.9	110.5	57.1	11.8	29.4	1.89
Sept	181.4	11.9	34.6	48.6	50.0	29.9	6.4	29.5	64.7	27.3	77.1	109.9	114.4	58.6	12.0	29.2	2.00
Dec	175.0	11.3	33.7	46.6	47.6	29.2	6.6	29.5	62.4	26.1	75.0	105.4	108.9	57.1	12.4	29.3	1.93
2008 March	173.8	11.1	33.5	46.7	47.2	28.8	6.4	29.5	62.9	26.0	74.0	105.5	111.6	58.2	12.3	29.3	1.94
June	177.0	11.0	33.5	48.3	48.4	29.2	6.6	29.5	64.1	25.8	73.9	109.2	114.4	59.1	12.6	29.4	1.98
Sept	182.4	11.4	35.2	50.3	49.3	29.5	6.7	29.4	65.3	26.5	76.8	112.4	115.3	59.0	12.8	29.3	2.02
Dec	175.5	11.1	33.8	47.7	47.6	28.7	6.7	29.5	62.9	25.8	73.7	106.5	111.4	57.4	12.6	29.3	1.94
2009 March[p]	168.9	10.9	32.8	46.2	45.3	27.2	6.5	29.4	61.7	26.1	71.5	102.9	108.1	57.1	12.6	29.4	1.89
June[p]	175.1	10.5	33.2	48.2	47.7	28.7	6.8	29.5	63.3	24.8	71.8	106.2	112.5	59.8	13.0	29.6	1.94
Sept[p]	181.2	10.9	35.1	50.3	49.3	28.9	6.8	29.5	64.7	25.3	74.9	109.5	115.1	59.3	12.8	29.5	1.99

Notes: The rates for women of all ages, under 20, and 40 and over are based upon the populations of women aged 15–44, 15–19, and 40–44 respectively.
Rates for 2009 are based on 2008-based population projections for 2009.

1 Unstandardised and therefore takes no account of the age structure of the population.

2 Standardised to take account of the age structure of the population. This measure is more appropriate for use when analysing trends or making comparisons between different geographies.

3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPFR (total period fertility rate).

4 Births per 1,000 women in the age-group; all quarterly age-specific fertility rates are adjusted for days in the quarter. They are not adjusted for seasonality.

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Table 3.2 Live births outside marriage: age of mother and type of registration

England and Wales

Numbers (thousands), mean age and percentages

Year and quarter	Age of mother at birth: All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	Mean age[1] (years)	Age of mother at birth: All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	Registration[2]: Joint: Same address[3]	Joint: Different addresses[3]	Sole
	Live births outside marriage (numbers)								Percentage of total live births in age group							As a percentage of all births outside marriage		
1971	65.7	21.6	22.0	11.5	6.2	3.2	1.1	23.7	8.4	26.1	7.7	4.7	5.7	7.0	9.0	45.5		54.5
1976	53.8	19.8	16.6	9.7	4.7	2.3	0.7	23.3	9.2	34.2	9.1	4.4	5.2	8.6	10.1	51.0		49.0
1981	81.0	26.4	28.8	14.3	7.9	1.3	0.9	23.4	12.8	46.7	14.8	6.6	6.2	3.9	12.5	58.2		41.8
1986	141.3	39.6	54.1	27.7	13.1	5.7	1.1	23.8	21.4	69.0	28.2	12.1	10.1	12.6	14.7	46.6	19.6	33.8
1991	211.3	43.4	77.8	52.4	25.7	9.8	2.1	24.8	30.2	82.9	44.9	21.1	16.0	18.3	21.3	54.6	19.8	25.6
1992	215.2	40.1	77.1	55.9	28.9	10.9	2.3	25.2	31.2	83.7	47.2	22.8	17.3	19.3	22.9	55.4	20.7	23.9
1993	216.5	38.2	75.0	57.5	31.4	11.9	2.5	25.5	32.2	84.8	49.4	24.4	18.4	20.2	23.5	54.8	22.0	23.2
1994	215.5	35.9	71.0	58.5	34.0	13.4	2.7	25.8	32.4	85.5	50.6	25.5	18.9	21.2	25.2	57.5	19.8	22.7
1995	219.9	36.3	69.7	59.6	37.0	14.4	3.0	26.0	33.9	86.6	53.3	27.4	20.4	22.0	26.2	58.1	20.1	21.8
1996	232.7	39.3	71.1	62.3	40.5	16.2	3.2	26.1	35.8	88.0	56.5	29.5	21.7	23.4	26.7	58.1	19.9	21.9
1997	238.2	41.1	69.5	63.4	42.2	18.2	3.7	26.2	37.0	88.7	58.6	31.3	22.5	24.3	28.6	59.5	19.3	21.2
1998	240.6	43.0	67.8	62.4	43.9	19.6	3.9	26.3	37.8	89.1	59.7	32.3	23.3	24.8	29.0	60.9	18.3	20.8
1999	241.9	43.0	67.5	61.2	45.0	20.8	4.3	26.4	38.9	89.0	61.0	33.6	24.3	25.6	30.2	61.8	18.2	19.9
2000	238.6	41.1	67.5	59.1	43.9	22.3	4.7	26.5	39.5	89.7	62.6	34.6	24.4	26.2	31.0	62.7	18.2	19.2
2001	238.1	39.5	68.1	56.8	45.2	23.3	5.1	26.7	40.0	89.5	62.6	35.5	25.3	26.9	31.6	63.2	18.4	18.4
2002	242.0	38.9	70.2	55.8	46.4	25.1	5.6	26.8	40.6	89.5	63.3	36.4	25.7	27.7	32.2	63.7	18.5	17.8
2003	257.2	39.9	75.7	58.2	49.2	27.8	6.4	26.9	41.4	90.2	64.9	37.1	26.3	28.5	33.3	63.5	19.0	17.4
2004	269.7	41.0	79.8	61.4	50.7	29.7	7.1	27.0	42.2	91.0	65.9	38.4	26.6	29.0	34.0	63.6	19.6	16.8
2005	276.5	41.2	82.1	64.4	50.8	30.3	7.7	27.0	42.8	91.8	67.2	39.2	27.0	29.1	34.8	63.5	20.2	16.3
2006	291.4	42.3	87.7	69.3	51.4	32.2	8.4	27.0	43.5	93.0	68.6	40.1	27.1	29.2	35.5	63.7	20.8	15.6
2007	305.6	41.7	91.9	76.0	53.0	34.0	9.0	27.1	44.3	93.1	70.3	41.6	27.7	29.5	35.5	65.0	20.1	15.0
2008	320.8	42.0	97.9	82.6	54.4	34.6	9.5	27.1	45.3	93.9	71.9	42.8	28.3	29.8	35.9	65.5	20.3	14.2
2003 March	61.0	9.8	18.0	13.9	11.6	6.3	1.5	26.8	41.4	90.1	64.5	37.0	26.9	29.1	33.3	63.0	18.9	18.1
June	62.8	9.6	18.3	14.2	12.2	6.9	1.6	27.0	40.5	90.0	64.0	36.2	25.7	28.3	33.7	64.0	18.5	17.4
Sept	67.6	10.3	20.0	15.3	13.0	7.3	1.7	26.9	41.5	90.2	65.6	38.3	26.4	28.6	33.3	63.7	19.3	18.0
Dec	65.8	10.2	19.5	14.9	12.5	7.3	1.6	26.9	42.2	90.4	65.6	38.0	27.7	29.5	32.9	63.3	19.4	17.4
2004 March	65.2	10.1	19.3	14.8	12.5	7.0	1.7	26.9	42.0	91.2	65.8	38.2	26.8	28.2	34.3	63.1	19.4	17.4
June	65.2	9.8	19.1	14.9	12.5	7.3	1.7	27.0	41.4	91.0	65.1	37.7	26.2	28.8	34.5	63.9	19.5	16.6
Sept	70.2	10.7	20.7	16.1	13.0	7.9	1.8	27.0	42.4	91.2	66.1	38.6	26.5	30.0	33.5	63.7	19.7	16.6
Dec	69.1	10.6	20.7	15.7	12.7	7.5	1.9	26.9	42.7	90.6	66.6	39.0	27.0	29.0	33.9	63.6	19.8	16.6
2005 March	66.3	10.1	19.6	15.2	12.2	7.3	1.9	27.0	43.0	92.0	67.0	39.0	27.1	29.6	35.2	63.1	20.3	16.6
June	66.6	9.8	19.7	15.4	12.5	7.4	1.8	27.0	41.7	91.2	66.5	38.2	26.4	28.1	33.5	63.7	19.8	16.5
Sept	73.7	10.9	22.1	17.3	13.4	7.9	2.1	26.9	43.3	92.0	68.0	39.6	27.2	29.3	35.7	63.7	20.3	16.0
Dec	69.9	10.4	20.7	16.5	12.6	7.7	2.0	27.0	43.2	92.1	67.4	39.8	27.3	29.5	34.8	63.5	20.3	16.2
2006 March	68.7	10.3	20.8	16.0	12.0	7.6	1.9	26.9	43.1	93.1	68.1	39.4	26.5	28.9	34.4	63.1	20.9	16.0
June	71.4	10.5	21.2	16.9	12.8	7.8	2.1	27.0	43.0	92.6	68.0	39.4	26.9	28.8	35.0	63.7	20.6	15.6
Sept	76.8	11.1	23.1	18.6	13.4	8.4	2.2	27.0	43.9	92.8	69.0	40.7	27.3	29.2	36.9	64.1	20.5	15.4
Dec	74.5	10.3	22.6	17.8	13.2	8.4	2.2	27.1	44.1	93.3	69.2	40.9	27.8	29.8	35.7	63.6	21.0	15.4
2007 March	72.5	10.2	21.7	17.6	12.6	8.2	2.2	27.1	44.2	93.5	69.8	41.3	27.5	29.8	35.1	64.0	20.5	15.5
June	73.5	9.9	21.8	18.3	13.0	8.3	2.2	27.1	43.4	92.6	69.5	41.0	27.2	28.8	35.2	65.1	19.9	14.9
Sept	80.8	11.1	24.4	20.4	13.9	8.8	2.2	27.0	44.5	93.2	70.5	41.9	27.8	29.6	35.0	65.2	20.1	14.7
Dec	78.7	10.6	24.0	19.7	13.5	8.7	2.4	27.1	45.0	93.1	71.3	42.2	28.3	29.6	36.5	65.3	19.9	14.8
2008 March	78.6	10.5	23.9	20.0	13.3	8.6	2.3	27.1	45.2	94.3	71.1	42.8	28.3	29.9	35.9	65.3	20.0	14.7
June	79.4	10.3	23.9	20.5	13.7	8.6	2.4	27.1	44.9	93.5	71.5	42.3	28.4	29.5	35.8	66.0	19.8	14.2
Sept	83.1	10.8	25.5	21.6	13.9	8.9	2.4	27.0	45.5	94.0	72.4	43.0	28.2	30.1	36.2	65.8	20.4	13.8
Dec	79.8	10.4	24.5	20.6	13.4	8.5	2.4	27.0	45.5	93.7	72.5	43.2	28.2	29.6	35.8	64.9	21.1	14.0
2009 March[p]	77.8	10.3	23.9	20.3	13.0	8.0	2.3	27.0	46.0	94.4	72.9	43.9	28.7	29.5	35.2	64.9	21.2	13.9
June[p]	79.4	9.9	24.3	20.8	13.6	8.4	2.4	27.1	45.4	94.4	73.1	43.1	28.5	29.4	35.0	65.7	20.7	13.6
Sept[p]	84.4	10.3	26.0	22.3	14.6	8.8	2.4	37.1	46.6	94.7	74.0	44.4	29.6	30.5	35.7	66.1	20.7	13.2

1 Unstandardised and therefore takes no account of the age structure of the population.
2 Births outside marriage can be registered by both the mother and father (joint) or by the mother alone (sole).
3 Usual address(es) of parents.
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Table 3.3 Live births: within marriage, within marriage to remarried women, age of mother and birth order[1]

England and Wales

Numbers (thousands) and mean age

Year and quarter	Age of mother at birth							Mean age[2] (years)	Age of mother at birth							Mean age[2] (years)
	All ages	Under 20	20–24	25–29	30–34	35–39	40 and over		All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	
	Live births within marriage								Live births within marriage to remarried women							
1971	717.5	61.1	263.7	235.7	103.4	42.1	11.6	26.4	19.4	0.1	2.1	6.6	6.1	3.4	1.1	33.1
1976	530.5	38.1	165.6	211.0	86.1	23.9	5.8	26.6	26.7	0.1	2.9	10.5	8.7	3.6	1.0	30.4
1981	553.5	30.1	165.7	201.5	118.7	31.5	6.0	27.2	38.8	0.1	3.6	13.4	14.1	6.2	1.4	30.9
1986	519.7	17.8	138.0	201.3	116.4	39.8	6.4	27.9	41.7	0.0	2.6	13.2	15.4	8.7	1.7	31.7
1991	487.9	8.9	95.6	196.3	135.5	43.8	7.7	28.9	39.4	0.0	1.6	10.8	15.8	9.1	2.1	32.4
1995	428.2	5.6	61.0	157.9	144.2	51.1	8.4	29.8	33.3	0.0	0.8	7.2	14.0	9.1	2.1	33.2
1996	416.8	5.4	54.7	148.8	145.9	53.3	8.9	30.0	32.6	0.0	0.7	6.4	13.9	9.3	2.2	33.4
1997	404.9	5.2	49.1	139.4	145.3	56.7	9.2	30.3	31.4	0.0	0.6	5.8	13.1	9.5	2.4	33.6
1998	395.3	5.3	45.7	130.7	144.6	59.3	9.6	30.5	30.2	0.0	0.6	5.1	12.4	9.7	2.4	33.9
1999	380.0	5.3	43.2	120.7	140.3	60.5	9.9	30.6	27.5	0.0	0.4	4.3	11.3	9.1	2.4	34.1
2000	365.8	4.7	40.3	111.6	136.2	62.7	10.4	30.8	25.8	0.0	0.4	3.7	10.4	8.9	2.4	34.3
2001	356.5	4.6	40.7	103.1	133.7	63.2	11.1	30.9	23.9	0.0	0.4	3.1	9.5	8.6	2.4	34.5
2002	354.1	4.6	40.7	97.6	134.1	65.4	11.8	31.0	22.8	0.0	0.3	2.7	8.9	8.5	2.5	34.7
2003	364.2	4.3	40.9	98.7	138.0	69.6	12.7	31.2	22.6	0.0	0.3	2.4	8.4	8.8	2.6	35.0
2004	370.0	4.1	41.3	98.5	139.8	72.6	13.7	31.2	21.5	0.0	0.3	2.2	7.7	8.6	2.7	35.1
2005	369.3	3.7	40.0	100.0	137.4	73.8	14.5	31.3	20.0	0.0	0.3	2.1	6.8	8.1	2.7	35.3
2006	378.2	3.2	40.1	103.3	138.0	78.3	15.3	31.4	18.7	0.0	0.2	1.9	6.1	7.7	2.7	35.4
2007	384.5	3.1	38.9	106.6	138.2	81.4	16.4	31.5	16.9	0.0	0.2	1.8	5.3	7.0	2.6	35.5
2008	387.9	2.7	38.2	110.4	138.1	81.6	16.9	31.5	15.0	0.0	0.2	1.7	4.5	6.2	2.4	35.5
2007 March	91.6	0.7	9.4	25.0	33.2	19.2	4.0	31.5	4.4	0.0	0.1	0.5	1.4	1.8	0.7	35.5
June	96.0	0.8	9.6	26.3	34.8	20.5	4.0	31.5	4.1	0.0	0.0	0.4	1.3	1.7	0.6	35.6
Sept	100.6	0.8	10.2	28.3	36.1	21.1	4.1	31.4	4.3	0.0	0.1	0.4	1.3	1.8	0.7	35.5
Dec	96.3	0.8	9.7	27.0	34.1	20.6	4.2	31.5	4.1	0.0	0.1	0.5	1.3	1.7	0.7	35.5
2008 March	95.2	0.6	9.7	26.7	33.8	20.2	4.1	31.5	3.9	0.0	0.0	0.4	1.2	1.6	0.6	35.4
June	97.6	0.7	9.6	27.9	34.6	20.6	4.2	31.5	3.8	0.0	0.1	0.4	1.1	1.6	0.6	35.5
Sept	99.4	0.7	9.7	28.7	35.4	20.6	4.3	31.5	3.8	0.0	0.0	0.5	1.1	1.6	0.6	35.5
Dec	95.7	0.7	9.3	27.1	34.2	20.2	4.3	31.5	3.5	0.0	0.0	0.4	1.1	1.4	0.6	35.4
	First live births								Second live births							
1971	283.6	49.5	135.8	74.8	17.2	5.1	1.2	23.9	240.8	10.7	93.6	94.1	31.8	8.9	1.7	26.2
1976	217.2	30.2	85.4	77.2	19.7	3.9	0.7	24.8	203.6	7.4	62.5	91.8	34.7	6.2	1.0	26.8
1981	224.3	23.6	89.5	77.2	27.8	5.4	0.7	25.3	205.7	6.1	59.0	82.7	47.7	9.1	1.1	27.4
1986	206.9	13.8	74.7	79.3	30.8	7.5	0.9	26.2	189.2	3.6	47.5	78.9	45.5	12.3	1.3	28.0
1991	193.7	6.7	51.2	84.5	40.2	9.7	1.3	27.5	178.3	2.0	32.8	73.9	53.0	14.7	1.9	28.9
1995	168.1	4.3	32.3	71.0	46.6	12.1	1.8	28.5	158.1	1.2	20.6	57.3	58.5	18.1	2.4	30.0
1996	163.0	4.2	28.9	67.2	47.7	13.1	1.9	28.8	153.8	1.0	18.5	53.4	59.1	19.2	2.6	30.3
1997	157.0	4.1	25.9	63.1	48.1	13.8	2.0	29.0	150.4	1.0	16.6	50.0	59.4	20.7	2.7	30.5
1998	155.7	4.2	24.3	60.6	49.5	15.0	2.1	29.2	146.9	1.0	15.5	46.4	58.9	22.2	2.8	30.7
1999	153.4	4.3	23.5	57.4	50.0	16.1	2.2	29.3	139.5	0.9	14.4	41.8	56.6	22.6	3.1	30.9
2000	146.5	3.8	21.6	52.7	49.4	16.6	2.4	29.6	134.7	0.8	13.7	38.4	54.8	23.8	3.2	31.1
2001	143.9	3.8	22.2	48.8	49.7	16.8	2.6	29.6	132.2	0.8	13.7	35.7	53.8	24.8	3.5	31.2
2002	145.2	3.8	22.4	47.1	51.0	18.1	2.8	29.8	130.3	0.7	13.5	33.0	53.7	25.6	3.8	31.4
2003	151.0	3.5	22.2	48.4	54.2	19.6	3.1	29.9	132.9	0.8	13.9	32.5	54.3	27.1	4.2	31.5
2004	154.5	3.3	22.6	48.9	55.5	20.7	3.5	30.0	133.7	0.7	13.8	31.9	54.5	28.3	4.5	31.6
2005	156.0	3.0	22.1	50.0	55.7	21.4	3.8	30.1	132.0	0.6	13.2	32.1	52.8	28.6	4.8	31.7
2006	161.1	2.6	22.7	51.9	56.4	23.4	4.0	30.2	134.5	0.5	12.8	32.8	52.8	30.5	5.0	31.8
2007	165.6	2.5	22.2	54.4	57.2	25.0	4.5	30.3	135.2	0.5	12.2	33.6	52.1	31.5	5.4	31.9
2008	163.6	2.2	21.7	55.1	56.1	23.9	4.5	30.3	138.4	0.4	12.3	35.2	52.6	32.3	5.6	31.9
2007 March	40.1	0.6	5.5	12.8	14.0	6.1	1.1	30.4	31.7	0.1	2.9	7.8	12.3	7.3	1.3	31.9
June	40.7	0.6	5.4	13.4	14.0	6.2	1.1	30.3	34.7	0.1	3.1	8.5	13.5	8.1	1.4	31.9
Sept	43.0	0.7	5.7	14.3	14.9	6.3	1.1	30.3	35.5	0.1	3.3	8.9	13.6	8.2	1.3	31.8
Dec	41.9	0.6	5.6	13.9	14.2	6.4	1.2	30.3	33.4	0.1	3.0	8.4	12.7	7.9	1.3	31.9
2008 March	39.6	0.5	5.4	13.1	13.6	5.9	1.1	30.3	34.1	0.1	3.2	8.6	12.9	7.9	1.4	31.8
June	40.7	0.6	5.4	13.9	13.7	5.9	1.1	30.3	35.3	0.1	3.1	9.0	13.5	8.3	1.4	31.9
Sept	41.8	0.5	5.6	14.2	14.4	6.0	1.1	30.3	35.4	0.1	3.1	9.2	13.5	8.1	1.4	31.8
Dec	41.4	0.6	5.3	13.8	14.4	6.1	1.2	30.4	33.5	0.1	3.0	8.4	12.7	8.0	1.4	32.0
	Third live births								Fourth and higher order live births[3]							
1971	111.7	0.9	26.6	43.6	27.9	10.4	2.2	28.7	81.4	0.1	7.6	23.2	26.5	17.6	6.5	30.7
1976	71.0	0.5	14.4	29.8	19.5	5.8	1.1	28.8	38.8	0.0	3.3	12.2	12.1	8.0	3.1	30.7
1981	82.4	0.4	14.1	29.5	28.7	8.7	1.0	29.5	41.1	0.0	3.1	12.0	14.5	8.3	3.2	31.1
1986	80.8	0.3	12.7	30.2	25.6	10.5	1.5	29.9	42.7	0.0	3.1	13.0	14.5	9.4	2.8	31.2
1991	76.1	0.2	9.4	26.8	27.5	10.5	1.8	30.4	39.8	0.0	2.3	11.1	14.8	8.9	2.7	31.6
1995	66.7	0.1	6.5	20.5	26.1	11.7	1.8	31.1	35.3	0.0	1.6	9.0	13.1	9.2	2.4	32.0
1996	65.3	0.1	5.8	19.6	26.0	12.0	1.8	31.3	34.7	0.0	1.5	8.6	13.1	9.0	2.6	32.2
1997	63.2	0.1	5.3	18.1	25.1	12.7	2.0	31.5	34.2	0.0	1.4	8.1	12.7	9.4	2.6	32.4
1998	60.4	0.1	4.7	16.4	24.0	13.1	2.1	31.8	32.3	0.0	1.2	7.4	12.1	9.0	2.6	32.6
1999	56.4	0.1	4.2	14.7	22.3	13.0	2.1	32.0	30.7	0.0	1.1	6.8	11.4	8.8	2.6	32.7
2000	54.9	0.1	4.0	14.1	21.1	13.5	2.2	32.1	29.7	0.0	1.0	6.4	10.9	8.7	2.7	32.8
2001	52.1	0.1	3.9	12.8	19.8	13.2	2.3	32.2	28.3	0.0	0.9	5.9	10.4	8.4	2.7	33.0
2002	50.3	0.1	3.9	11.8	19.0	13.1	2.4	32.3	28.2	0.0	0.9	5.6	10.3	8.5	2.8	33.1
2003	52.0	0.1	3.8	12.1	19.2	14.1	2.6	32.5	28.4	0.0	1.0	5.7	10.2	8.8	2.8	33.1
2004	52.5	0.1	4.0	12.1	19.3	14.3	2.7	32.5	29.3	0.0	0.9	5.7	10.5	9.2	2.9	33.2
2005	52.2	0.1	3.8	12.3	18.7	14.5	2.9	32.5	29.2	0.0	0.9	5.6	10.2	9.4	3.0	33.3
2006	53.0	0.1	3.7	12.8	18.5	15.0	3.1	32.6	29.6	0.0	0.9	5.9	10.3	9.4	3.1	33.2
2007	53.4	0.1	3.6	12.8	18.5	15.2	3.2	32.6	30.1	0.0	0.9	5.9	10.4	9.7	3.3	33.4
2008	54.8	0.0	3.4	13.7	18.8	15.5	3.3	32.6	31.2	0.0	0.8	6.3	10.6	9.9	3.6	33.4
2007 March	12.6	0.0	0.9	3.0	4.4	3.5	0.8	32.6	7.2	0.0	0.2	1.4	2.5	2.3	0.8	33.3
June	13.3	0.0	0.9	3.1	4.6	3.8	0.8	32.7	7.4	0.0	0.2	1.4	2.6	2.4	0.9	33.5
Sept	14.3	0.0	1.0	3.4	4.9	4.1	0.8	32.6	7.9	0.0	0.2	1.5	2.7	2.6	0.9	33.3
Dec	13.3	0.0	0.9	3.2	4.6	3.8	0.8	32.7	7.7	0.0	0.2	1.5	2.7	2.5	0.9	33.4
2008 March	13.6	0.0	0.9	3.3	4.7	3.9	0.8	32.6	7.9	0.0	0.2	1.6	2.7	2.5	0.9	33.3
June	14.0	0.0	0.9	3.5	4.8	4.0	0.8	32.7	7.5	0.0	0.2	1.5	2.6	2.4	0.9	33.4
Sept	14.1	0.0	0.9	3.6	4.8	4.0	0.9	32.6	8.0	0.0	0.2	1.6	2.7	2.5	0.9	33.3
Dec	13.1	0.0	0.8	3.3	4.5	3.7	0.8	32.6	7.7	0.0	0.2	1.6	2.6	2.5	0.9	33.4

1 Birth order is based on all live births within marriage to the mother by her present or any former husband.

2 The mean ages shown in this table are unstandardised and therefore take no acount of changes in the structure of the population by age, marital status or parity.

3 Mean age at birth refers to fourth live births only.

Table 4.1 Conceptions: age of woman at conception

England and Wales (residents)

Numbers (thousands) and rates; and percentage terminated by abortion

Year and quarter	Age of woman at conception								
	All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
(a) numbers (thousands)									
1991	853.7	7.5	40.1	101.6	233.3	281.5	167.5	57.6	12.1
1996	816.9	8.9	43.5	94.9	179.8	252.6	200.0	75.5	14.1
1999	774.0	7.9	42.0	98.8	157.6	218.5	197.1	86.0	16.0
2000	767.0	8.1	41.3	97.7	159.0	209.3	195.3	88.7	17.0
2001	763.7	7.9	41.0	96.0	161.6	199.3	196.7	92.2	17.8
2002	787.0	7.9	42.0	97.1	167.8	199.4	204.3	98.9	19.6
2003	806.8	8.0	42.2	98.6	175.3	199.8	209.0	103.1	20.9
2004	826.8	7.6	42.2	101.3	181.3	205.1	209.6	106.8	22.8
2005	841.8	7.9	42.3	102.3	185.5	211.3	209.2	110.0	23.6
2006	870.0	7.8	41.8	103.1	191.2	222.2	212.4	115.4	25.5
2007	895.9	8.2	43.0	106.3	198.7	234.8	211.5	118.0	26.5
2008[2,P]	887.8	7.6	41.3	103.2	198.3	237.6	206.9	115.5	26.4
2005 March	204.6	1.9	10.4	25.1	45.4	50.8	51.0	26.6	5.7
June	204.7	2.0	10.5	25.1	45.2	51.0	50.7	26.9	5.8
Sept	210.9	2.0	10.4	25.3	45.6	53.3	53.1	27.5	6.0
Dec	221.7	2.0	11.0	26.8	49.3	56.2	54.3	29.1	6.0
2006 March	214.0	1.8	10.2	25.4	47.5	54.2	52.4	28.3	6.2
June	212.6	2.1	10.6	25.7	46.9	53.8	51.4	28.3	6.5
Sept	215.1	2.0	10.0	24.7	46.3	55.3	53.6	28.9	6.4
Dec	228.2	2.0	11.0	27.3	50.6	58.9	55.1	29.9	6.5
2007 March	221.6	2.0	10.8	26.7	49.4	57.0	52.7	29.3	6.5
June	221.3	2.1	10.9	26.9	49.3	57.5	52.0	29.0	6.5
Sept	222.7	2.0	10.4	25.7	48.6	58.9	53.0	29.8	6.7
Dec	230.3	2.0	10.9	27.0	51.3	61.4	53.9	29.9	6.8
2008 March[2,P]	224.3	2.0	10.7	26.9	49.9	59.3	52.4	29.2	6.7
June[2,P]	216.1	2.0	10.6	26.0	48.7	57.2	49.6	28.1	6.5
Sept[2,P]	221.1	1.8	9.9	24.7	48.8	59.6	52.1	29.1	6.7
Dec[2,P]	226.4	1.8	10.1	25.6	50.9	61.5	52.8	29.0	6.5
(b) rates (conceptions per thousand women in age group)									
1991	77.7	8.9	44.6	64.1	120.2	135.1	90.1	34.4	6.6
1996	76.2	9.5	46.3	63.2	110.1	127.6	96.3	40.7	8.4
1999	71.9	8.3	45.1	63.1	103.9	118.0	95.3	42.9	9.1
2000	70.9	8.3	43.9	62.5	103.2	115.7	95.3	43.2	9.4
2001	70.3	8.0	42.7	60.8	102.5	114.2	96.7	44.3	9.6
2002	72.2	7.9	42.9	60.6	104.4	119.0	101.7	47.0	10.3
2003	73.7	7.9	42.4	60.0	107.2	122.0	106.0	49.1	10.7
2004	75.2	7.5	41.8	60.3	109.0	125.1	109.6	51.0	11.4
2005	76.0	7.8	41.4	60.1	108.7	125.8	112.0	53.2	11.5
2006	78.3	7.8	40.9	60.2	109.5	129.5	117.5	56.3	12.3
2007	80.5	8.3	41.9	61.7	111.6	133.7	121.9	58.2	12.6
2008[1,2,P]	79.9	7.8	40.6	60.0	108.8	133.5	121.6	58.1	12.6
2005 March	75.1	7.6	41.5	60.0	108.9	123.8	109.8	51.8	11.4
June	74.2	8.0	41.1	59.1	106.7	122.1	108.5	52.0	11.4
Sept	75.5	7.8	40.5	59.0	105.7	125.6	113.3	52.8	11.7
Dec	79.3	7.9	42.8	62.4	113.6	131.7	116.7	55.9	11.5
2006 March	78.2	7.1	40.4	60.3	111.2	129.2	116.2	55.7	12.2
June	76.7	8.2	41.4	60.3	108.1	126.1	113.6	55.3	12.5
Sept	76.8	7.7	38.7	57.2	104.9	127.5	118.2	56.0	12.1
Dec	81.4	8.1	42.8	63.0	114.1	135.1	122.7	58.2	12.3
2007 March	80.8	8.1	42.9	63.0	113.4	132.8	121.2	58.4	12.6
June	79.8	8.7	42.8	62.6	111.4	131.7	119.7	57.2	12.5
Sept	79.4	8.2	40.1	59.1	108.1	132.9	121.5	58.4	12.6
Dec	82.2	8.3	42.1	62.3	113.3	138.0	124.1	59.0	12.8
2008 March[1,2,P]	81.2	8.1	42.3	62.8	111.0	134.6	123.1	58.6	12.7
June[1,2,P]	78.2	8.1	41.7	60.8	107.8	129.4	116.9	56.7	12.5
Sept[1,2,P]	79.2	7.6	38.8	57.3	106.3	132.8	121.9	58.5	12.7
Dec[1,2,P]	81.1	7.6	40.0	59.5	110.4	136.3	123.5	58.7	12.4

Notes: Conception figures are estimates derived from birth registrations and abortion notifications.
Rates for women of all ages, under 16, under 18, under 20 and 40 and over are based on the population of women aged 15-44, 13-15, 15-17, 15-19 and 40-44 respectively.
For a quarterly analysis of conceptions to women under 18 for local authority areas see the ONS website www.statistics.gov.uk/statbase/product.asp?vlnk=15055

1 Provisional rates for both quarterly and annual 2008 conceptions are calculated using the 2008 mid-year population estimates.

2 Provisional figures for conceptions in 2008 exclude maternities relating to births in 2009 where the mother's age was not recorded.

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Table 4.1 continued **Conceptions: age of woman at conception**

England and Wales (residents) — Numbers (thousands) and rates; and percentage terminated by abortion

Year and quarter	Age of woman at conception								
	All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
	(c) percentage terminated by abortion								
1991	*19.4*	*51.1*	*39.9*	*34.5*	*22.2*	*13.4*	*13.7*	*22.0*	*41.6*
1996	*20.8*	*49.2*	*40.0*	*36.2*	*25.7*	*15.6*	*14.1*	*21.2*	*37.6*
1999	*22.6*	*52.6*	*43.0*	*38.6*	*28.5*	*17.5*	*14.7*	*21.2*	*37.0*
2000	*22.7*	*54.0*	*44.2*	*39.3*	*29.2*	*17.7*	*14.5*	*20.5*	*35.4*
2001	*23.2*	*55.8*	*45.7*	*40.4*	*29.7*	*18.4*	*14.6*	*20.4*	*34.6*
2002	*22.5*	*55.6*	*45.3*	*39.9*	*28.8*	*17.9*	*13.9*	*19.5*	*34.6*
2003	*22.5*	*57.4*	*45.7*	*40.2*	*29.0*	*17.9*	*13.6*	*18.9*	*34.7*
2004	*22.4*	*57.2*	*45.6*	*40.1*	*28.9*	*18.2*	*13.2*	*18.3*	*33.0*
2005	*22.2*	*57.1*	*46.3*	*40.3*	*28.6*	*18.0*	*13.2*	*17.7*	*32.8*
2006	*22.3*	*59.8*	*48.4*	*41.9*	*28.7*	*18.0*	*13.1*	*17.1*	*31.8*
2007	*22.0*	*61.5*	*50.0*	*42.6*	*28.2*	*17.5*	*12.7*	*16.7*	*31.1*
2008[2,P]	*21.8*	*61.6*	*49.4*	*42.4*	*28.0*	*17.4*	*12.9*	*16.3*	*30.0*
2005 March	*22.5*	*57.5*	*47.3*	*41.1*	*29.2*	*18.1*	*13.1*	*18.0*	*32.6*
June	*22.7*	*57.0*	*45.8*	*40.3*	*28.9*	*18.6*	*13.9*	*17.8*	*33.8*
Sept	*21.4*	*56.2*	*45.3*	*39.0*	*27.5*	*17.5*	*12.6*	*17.2*	*32.1*
Dec	*22.2*	*57.5*	*46.9*	*40.6*	*28.2*	*17.8*	*13.1*	*17.7*	*32.7*
2006 March	*22.5*	*59.0*	*47.7*	*41.6*	*29.1*	*18.4*	*13.0*	*17.5*	*31.1*
June	*23.1*	*59.5*	*49.0*	*42.5*	*29.6*	*18.8*	*13.9*	*17.8*	*31.6*
Sept	*21.5*	*60.4*	*48.0*	*41.3*	*27.7*	*17.5*	*12.7*	*16.3*	*32.8*
Dec	*22.0*	*60.2*	*49.1*	*42.0*	*28.3*	*17.4*	*12.8*	*16.9*	*31.7*
2007 March	*22.7*	*62.6*	*50.7*	*43.2*	*29.5*	*18.3*	*13.0*	*16.9*	*31.1*
June	*22.5*	*61.9*	*50.3*	*43.1*	*28.6*	*18.0*	*12.8*	*16.9*	*31.5*
Sept	*21.0*	*57.9*	*48.5*	*41.3*	*26.9*	*16.5*	*12.3*	*16.0*	*30.8*
Dec	*21.8*	*63.6*	*50.4*	*42.6*	*28.0*	*17.2*	*12.5*	*16.8*	*30.8*
2008 March[2,P]	*22.6*	*62.2*	*50.6*	*43.8*	*28.9*	*17.9*	*13.1*	*16.8*	*31.2*
June[2,P]	*22.4*	*61.5*	*49.0*	*42.3*	*28.4*	*18.2*	*13.2*	*16.8*	*29.9*
Sept[2,P]	*21.2*	*61.7*	*48.9*	*41.7*	*27.4*	*16.9*	*12.6*	*15.6*	*29.6*
Dec[2,P]	*21.2*	*60.7*	*49.0*	*41.6*	*27.4*	*16.6*	*12.5*	*16.0*	*29.1*

See notes on first page of table.

Table 4.2 Abortions: residents and non-residents; age and gestation (residents only)

England and Wales

Numbers (thousands) and rates; and percentages for gestation weeks

Year and quarter	All ages: All[1] women	All ages: Residents[1]	All ages: Non-[1] resident	All women (residents): Age group: Under	16–19	20–24	25–29	30–34	35–44	45 and over	Gestation weeks (percentages): Under	9–12	13–19	20 and over
Numbers (thousands)											**Percentages**			
1971	126.8	94.6	32.2	2.3	18.2	24.5	17.3	14.2	15.9	0.5	*16.6*	*57.9*	*21.8*	*1.0*
1976	129.7	101.9	27.8	3.4	24.0	23.6	19.3	14.6	14.7	0.5	*24.8*	*55.8*	*15.0*	*1.1*
1981	162.5	128.6	33.9	3.5	31.4	34.3	21.9	18.7	17.6	0.6	*31.0*	*53.4*	*13.5*	*1.3*
1986	172.3	147.6	24.7	3.9	33.8	45.3	28.7	18.0	17.5	0.4	*33.4*	*53.8*	*11.5*	*1.4*
1991	179.5	167.4	12.1	3.2	31.1	52.7	38.6	23.4	17.9	0.4	*35.2*	*52.9*	*10.6*	*1.2*
1996	177.5	167.9	9.6	3.6	28.8	46.4	39.3	28.2	21.1	0.4	*40.0*	*48.7*	*10.1*	*1.3*
1997	179.7	170.1	9.6	3.4	29.9	45.0	40.2	28.9	22.3	0.5	*41.2*	*47.9*	*9.6*	*1.2*
1998	187.4	177.9	9.5	3.8	33.2	45.8	40.4	30.4	23.8	0.5	*41.4*	*47.6*	*9.7*	*1.3*
1999	183.2	173.7	9.5	3.6	32.8	45.0	38.5	29.1	24.1	0.5	*42.5*	*46.5*	*9.5*	*1.4*
2000	185.4	175.5	9.8	3.7	33.2	47.1	37.9	28.7	24.4	0.5	*43.2*	*45.0*	*10.3*	*1.5*
2001	186.3	176.4	9.9	3.7	33.4	48.3	36.5	28.8	25.2	0.5	*42.8*	*45.0*	*10.6*	*1.6*
2002	185.4	175.9	9.5	3.7	33.0	48.4	35.8	28.5	26.0	0.5	*42.2*	*45.2*	*11.0*	*1.6*
2003	190.7	181.6	9.1	4.0	34.2	51.1	36.0	28.7	26.9	0.5	*43.6*	*43.7*	*11.1*	*1.6*
2004	194.5	185.7	8.8	3.8	35.5	52.8	37.8	28.1	27.3	0.5	*46.2*	*41.5*	*10.8*	*1.6*
2005	194.4	186.4	7.9	3.8	35.3	53.3	38.3	27.8	27.2	0.6	*53.6*	*35.7*	*9.3*	*1.4*
2006	201.2	193.7	7.4	4.0	37.3	55.3	40.4	28.2	27.9	0.7	*54.9*	*34.3*	*9.2*	*1.5*
2007	205.6	198.5	7.1	4.4	39.6	57.0	41.7	27.3	27.9	0.7	*57.9*	*31.9*	*8.8*	*1.5*
2008	202.2	195.3	6.9	4.1	38.6	56.2	41.9	27.0	26.9	0.7	*61.6*	*28.7*	*8.2*	*1.5*
2005 March	50.1	47.9	2.1	0.9	9.1	13.9	9.7	7.2	7.0	0.1	*47.2*	*40.4*	*11.0*	*1.4*
June	50.1	48.0	2.1	1.0	9.2	13.9	9.9	7.1	6.9	0.1	*53.8*	*35.6*	*9.2*	*1.4*
Sept	47.0	45.1	1.9	1.0	8.5	12.7	9.3	6.9	6.7	0.1	*56.5*	*33.6*	*8.5*	*1.3*
Dec	47.2	45.3	1.8	0.9	8.6	12.9	9.5	6.7	6.7	0.1	*57.2*	*32.9*	*8.3*	*1.5*
2006 March	52.4	50.4	2.0	1.0	9.8	14.6	10.4	7.2	7.3	0.2	*50.6*	*37.3*	*10.5*	*1.6*
June	51.3	49.3	2.0	1.0	9.4	14.2	10.3	7.2	7.1	0.2	*53.6*	*35.3*	*9.4*	*1.7*
Sept	49.8	47.9	1.8	1.0	9.2	13.6	10.0	7.0	6.9	0.2	*56.5*	*33.0*	*9.0*	*1.5*
Dec	47.7	46.0	1.6	1.0	8.8	13.0	9.6	6.7	6.7	0.1	*59.5*	*31.3*	*7.9*	*1.3*
2007 March	55.3	53.3	1.9	1.2	10.8	15.4	11.1	7.3	7.4	0.2	*54.1*	*35.0*	*9.4*	*1.6*
June	51.2	49.4	1.8	1.1	9.9	14.3	10.3	6.7	6.8	0.2	*56.6*	*32.6*	*9.2*	*1.5*
Sept	49.9	48.2	1.7	1.0	9.5	13.5	10.2	6.6	7.0	0.2	*58.6*	*31.2*	*8.8*	*1.4*
Dec	49.2	47.6	1.6	1.1	9.4	13.7	10.0	6.6	6.7	0.2	*62.7*	*28.3*	*7.6*	*1.4*
2008 March	53.4	51.6	1.8	1.1	10.5	14.8	10.8	7.0	7.2	0.2	*58.4*	*31.0*	*9.0*	*1.6*
June	52.5	50.8	1.8	1.1	10.1	14.6	10.9	6.9	7.0	0.2	*60.8*	*29.5*	*8.3*	*1.4*
Sept	48.7	47.0	1.7	1.0	9.2	13.4	10.3	6.5	6.5	0.2	*62.9*	*27.6*	*8.0*	*1.4*
Dec	47.5	45.9	1.6	1.0	8.8	13.3	9.9	6.5	6.2	0.2	*64.8*	*26.2*	*7.6*	*1.4*
2009 March[P]	51.7	50.0	1.7	1.1	9.8	14.7	10.6	6.9	6.8	0.2	*61.0*	*28.4*	*8.9*	*1.7*
June[P]	49.9	48.3	1.7	0.9	9.2	14.1	10.4	6.8	6.6	0.2	*64.2*	*26.8*	*7.8*	*1.3*
Sept[P]	47.3	45.6	1.7	1.0	8.7	13.0	9.9	6.4	6.4	0.2	*64.4*	*26.1*	*8.0*	*1.5*
Rates (per thousand women residents)														
	ASR[2] (women 15-44)	Crude rate[3] (women 15-44)												
1971	9.9	10.1	:	2.3	13.9	13.1	10.7	10.0	5.6	0.3				
1976	10.2	10.5	:	2.9	16.9	14.2	10.4	9.2	5.3	0.3				
1981	11.9	12.4	:	3.0	19.4	18.6	13.1	10.1	5.9	0.4				
1986	13.0	13.5	:	3.7	22.0	21.9	15.5	10.8	5.1	0.3				
1991	15.0	15.2	:	3.8	24.0	27.1	18.5	12.6	5.1	0.3				
1996	16.0	15.7	:	3.9	24.2	28.4	19.9	13.6	6.0	0.2				
1997	16.3	15.9	:	3.7	24.4	28.8	20.7	13.8	6.2	0.3				
1998	17.1	16.6	:	4.0	26.8	30.2	21.2	14.6	6.5	0.3				
1999	16.8	16.2	:	3.8	26.3	29.7	20.8	14.1	6.4	0.3				
2000	17.0	16.3	:	3.9	26.9	30.7	20.9	14.1	6.3	0.3				
2001	17.0	16.2	:	3.7	26.6	30.6	20.9	14.2	6.4	0.3				
2002	17.0	16.1	:	3.7	25.8	30.1	21.4	14.2	6.5	0.3				
2003	17.5	16.6	:	3.9	26.1	31.2	22.1	14.6	6.6	0.3				
2004	17.8	16.9	:	3.7	26.5	31.9	23.3	14.7	6.7	0.3				
2005	17.8	17.0	:	3.7	26.3	32.0	23.6	14.5	6.6	0.3				
2006	18.3	17.5	:	3.9	27.3	32.5	24.3	15.1	6.8	0.4				
2007	18.6	17.9	:	4.4	28.9	32.6	24.3	15.1	6.7	0.4				
2008	18.2	17.6	:	4.2	27.8	31.6	23.9	15.6	6.5	0.4				
2005 March	18.4	17.5	:	3.7	27.0	33.5	23.8	15.2	6.8	0.3				
June	18.4	17.5	:	3.8	27.2	33.3	24.1	15.3	6.7	0.3				
Sept	17.3	16.4	:	3.8	25.2	30.5	22.6	14.8	6.5	0.3				
Dec	17.4	16.5	:	3.6	25.4	30.9	23.0	14.4	6.5	0.3				
2006 March	19.3	18.4	:	3.9	29.0	34.8	25.0	15.9	7.0	0.3				
June	18.9	18.0	:	3.9	27.8	33.8	24.7	16.0	6.8	0.4				
Sept	18.3	17.5	:	4.0	27.0	32.2	23.9	15.9	6.7	0.4				
Dec	17.5	16.8	:	4.0	25.9	30.8	22.8	15.3	6.5	0.3				
2007 March	20.0	19.2	:	4.7	31.4	35.3	25.6	16.7	7.2	0.4				
June	18.5	17.8	:	4.4	28.8	32.7	23.7	15.5	6.6	0.4				
Sept	18.0	17.4	:	4.2	27.7	30.8	23.3	15.4	6.8	0.4				
Dec	17.8	17.2	:	4.4	27.2	31.1	22.7	15.3	6.5	0.4				
2008 March	19.1	18.5	:	4.7	30.4	32.6	24.1	16.3	7.0	0.4				
June	18.7	18.2	:	4.4	29.3	32.1	24.1	16.0	6.9	0.3				
Sept	17.3	16.9	:	4.0	26.6	29.3	22.6	15.3	6.3	0.4				
Dec	16.9	16.4	:	4.1	25.4	29.0	21.5	15.2	6.1	0.3				
2009 March[P]	18.4	17.9	:	4.5	28.5	31.8	22.9	16.1	6.7	0.4				
June[P]	17.6	17.3	:	4.0	26.9	30.4	22.4	15.8	6.6	0.3				
Sept[P]	16.7	16.3	:	4.1	25.5	27.9	21.2	15.0	6.4	0.4				

Notes: Rates for under 16 and 45 and over are based on female populations aged 13-15 and 45-49 respectively.

1 Includes cases with not stated age and/or gestation week.

2 Rates for all women residents age-standardised to the European population for ages 15-44.

3 Includes incomplete forms that have been returned to practitioners.

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Table 5.1 Period expectation of life at birth and selected ages, UK and constituent countries

Constituent countries of the United Kingdom

Years

Year	Males: At birth	Males: At age 5	20	30	50	60	70	80	Year	Females: At birth	Females: At age 5	20	30	50	60	70	80
United Kingdom																	
1981	70.8	66.9	52.3	42.7	24.1	16.3	10.1	5.8	1981	76.8	72.7	57.9	48.2	29.2	20.8	13.3	7.5
1986	71.9	67.8	53.2	43.6	24.9	16.8	10.5	6.0	1986	77.7	73.4	58.6	48.8	29.8	21.2	13.8	7.8
1991	73.2	68.9	54.2	44.7	26.0	17.7	11.1	6.4	1991	78.7	74.3	59.5	49.7	30.6	21.9	14.3	8.2
1996	74.2	69.8	55.1	45.6	26.9	18.5	11.6	6.6	1996	79.4	74.9	60.1	50.3	31.2	22.3	14.5	8.3
2000	75.3	70.9	56.1	46.6	28.0	19.5	12.3	7.0	2000	80.1	75.6	60.8	51.0	31.9	23.0	15.0	8.6
2001	75.6	71.2	56.4	46.9	28.2	19.7	12.5	7.1	2001	80.4	75.8	61.0	51.2	32.1	23.2	15.1	8.7
2002	75.9	71.4	56.6	47.1	28.5	19.9	12.6	7.1	2002	80.5	75.9	61.1	51.3	32.2	23.3	15.2	8.7
2003	76.2	71.7	56.9	47.4	28.7	20.2	12.8	7.3	2003	80.7	76.1	61.3	51.5	32.4	23.4	15.3	8.7
2004	76.5	72.0	57.3	47.7	29.0	20.5	13.1	7.4	2004	80.9	76.4	61.5	51.7	32.6	23.6	15.5	8.8
2005	76.9	72.4	57.6	48.0	29.4	20.8	13.4	7.6	2005	81.3	76.7	61.9	52.0	32.9	23.9	15.8	9.0
2006	77.2	72.7	57.9	48.3	29.6	21.1	13.6	7.7	2006	81.5	76.9	62.0	52.2	33.1	24.1	15.9	9.1
2007	77.4	72.9	58.1	48.5	29.9	21.3	13.8	7.8	2007	81.6	77.1	62.2	52.4	33.2	24.3	16.1	9.2
England and Wales																	
1981	71.0	67.1	52.5	42.9	24.3	16.4	10.1	5.8	1981	77.0	72.9	58.1	48.3	29.4	20.9	13.4	7.5
1986	72.1	68.0	53.4	43.8	25.0	16.9	10.5	6.1	1986	77.9	73.6	58.8	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.4	44.8	26.1	17.8	11.2	6.4	1991	78.9	74.5	59.7	49.9	30.8	22.0	14.4	8.3
1996	74.5	70.1	55.3	45.8	27.1	18.6	11.6	6.6	1996	79.6	75.1	60.2	50.4	31.3	22.5	14.6	8.4
2000	75.6	71.1	56.4	46.8	28.1	19.6	12.3	7.0	2000	80.3	75.8	60.9	51.1	32.0	23.1	15.1	8.6
2001	75.9	71.4	56.7	47.1	28.4	19.9	12.5	7.1	2001	80.5	76.0	61.2	51.3	32.2	23.3	15.2	8.7
2002	76.1	71.6	56.9	47.3	28.6	20.1	12.7	7.2	2002	80.7	76.1	61.3	51.5	32.3	23.4	15.3	8.7
2003	76.4	71.9	57.2	47.6	28.9	20.3	12.9	7.3	2003	80.9	76.3	61.5	51.7	32.5	23.6	15.4	8.8
2004	76.8	72.3	57.5	47.9	29.2	20.6	13.2	7.4	2004	81.1	76.6	61.7	51.9	32.7	23.8	15.6	8.9
2005	77.2	72.7	57.9	48.3	29.6	21.0	13.5	7.6	2005	81.5	76.9	62.0	52.2	33.1	24.1	15.9	9.1
2006	77.4	72.9	58.2	48.5	29.8	21.2	13.7	7.7	2006	81.7	77.1	62.2	52.4	33.2	24.3	16.0	9.2
2007	77.7	73.2	58.4	48.8	30.0	21.4	13.9	7.8	2007	81.8	77.3	62.4	52.6	33.4	24.4	16.2	9.2
England																	
1981	71.1	67.1	52.5	42.9	24.3	16.4	10.1	5.8	1981	77.0	72.9	58.2	48.4	29.4	20.9	13.4	7.5
1986	72.2	68.1	53.4	43.8	25.1	17.0	10.6	6.1	1986	77.9	73.6	58.8	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.4	44.9	26.2	17.8	11.2	6.4	1991	78.9	74.5	59.7	49.9	30.8	22.0	14.4	8.3
1996	74.5	70.1	55.4	45.8	27.1	18.7	11.7	6.6	1996	79.6	75.1	60.3	50.4	31.3	22.5	14.6	8.4
2000	75.6	71.2	56.4	46.9	28.2	19.6	12.4	7.0	2000	80.3	75.8	61.0	51.2	32.0	23.1	15.1	8.6
2001	75.9	71.4	56.7	47.1	28.5	19.9	12.6	7.1	2001	80.6	76.0	61.2	51.4	32.2	23.3	15.2	8.7
2002	76.1	71.7	56.9	47.4	28.7	20.1	12.7	7.2	2002	80.7	76.1	61.3	51.5	32.4	23.4	15.3	8.7
2003	76.5	72.0	57.2	47.6	28.9	20.4	12.9	7.3	2003	80.9	76.4	61.5	51.7	32.6	23.6	15.4	8.8
2004	76.8	72.3	57.6	48.0	29.2	20.7	13.2	7.4	2004	81.1	76.6	61.7	51.9	32.8	23.8	15.6	8.9
2005	77.2	72.7	57.9	48.3	29.6	21.0	13.5	7.6	2005	81.5	76.9	62.1	52.3	33.1	24.1	15.9	9.1
2006	77.5	73.0	58.2	48.6	29.8	21.2	13.7	7.7	2006	81.7	77.1	62.3	52.4	33.3	24.3	16.0	9.2
2007	77.7	73.2	58.4	48.8	30.1	21.5	13.9	7.9	2007	81.9	77.3	62.4	52.6	33.4	24.4	16.2	9.2
Wales																	
1981	70.4	66.5	51.9	42.2	23.6	15.8	9.7	5.6	1981	76.4	72.3	57.5	47.7	28.9	20.5	13.1	7.4
1986	71.6	67.5	52.8	43.2	24.6	16.6	10.3	6.0	1986	77.5	73.3	58.5	48.7	29.7	21.1	13.7	7.8
1991	73.1	68.8	54.1	44.6	25.8	17.6	11.0	6.4	1991	78.8	74.3	59.5	49.7	30.6	21.8	14.3	8.3
1996	73.8	69.4	54.7	45.3	26.6	18.2	11.3	6.4	1996	79.1	74.6	59.7	49.9	30.9	22.1	14.4	8.3
2000	74.8	70.4	55.7	46.2	27.6	19.1	12.0	6.8	2000	79.7	75.2	60.4	50.6	31.5	22.6	14.7	8.4
2001	75.3	70.8	56.0	46.6	28.0	19.5	12.3	7.0	2001	80.0	75.4	60.6	50.8	31.7	22.8	14.9	8.5
2002	75.5	70.9	56.2	46.8	28.2	19.7	12.4	7.1	2002	80.1	75.5	60.7	50.9	31.8	22.9	15.0	8.6
2003	75.8	71.2	56.5	47.0	28.4	19.9	12.6	7.2	2003	80.3	75.7	60.9	51.1	32.0	23.1	15.1	8.6
2004	76.1	71.6	56.8	47.3	28.7	20.2	12.8	7.3	2004	80.6	76.0	61.1	51.3	32.2	23.3	15.2	8.7
2005	76.6	72.0	57.3	47.7	29.2	20.6	13.2	7.6	2005	80.9	76.3	61.5	51.6	32.6	23.7	15.5	8.9
2006	76.7	72.1	57.4	47.8	29.3	20.8	13.4	7.6	2006	81.1	76.5	61.6	51.8	32.7	23.8	15.7	9.0
2007	76.9	72.3	57.5	48.0	29.5	21.0	13.5	7.7	2007	81.2	76.6	61.8	51.9	32.9	23.9	15.9	9.1
Scotland																	
1981	69.1	65.2	50.6	41.1	22.9	15.4	9.6	5.5	1981	75.3	71.2	56.4	46.7	27.9	19.7	12.7	7.2
1986	70.2	66.0	51.4	41.9	23.5	15.8	9.9	5.7	1986	76.2	71.9	57.1	47.3	28.4	20.1	13.0	7.5
1991	71.4	67.1	52.5	43.0	24.6	16.6	10.4	6.1	1991	77.1	72.7	57.9	48.1	29.2	20.7	13.5	7.9
1996	72.2	67.8	53.1	43.7	25.3	17.3	10.9	6.3	1996	77.9	73.3	58.5	48.8	29.8	21.2	13.8	8.0
2000	73.1	68.6	53.9	44.6	26.3	18.2	11.5	6.6	2000	78.6	74.0	59.2	49.4	30.5	21.8	14.1	8.1
2001	73.3	68.8	54.2	44.8	26.6	18.4	11.7	6.8	2001	78.8	74.2	59.4	49.6	30.7	22.0	14.3	8.2
2002	73.5	69.0	54.3	45.0	26.7	18.6	11.8	6.8	2002	78.9	74.3	59.5	49.7	30.8	22.1	14.4	8.2
2003	73.8	69.3	54.6	45.2	27.0	18.8	12.0	6.9	2003	79.1	74.5	59.7	49.9	30.9	22.2	14.5	8.3
2004	74.2	69.7	55.0	45.6	27.3	19.1	12.2	7.0	2004	79.3	74.7	59.9	50.1	31.1	22.4	14.7	8.4
2005	74.6	70.1	55.4	45.9	27.7	19.4	12.5	7.2	2005	79.6	75.0	60.2	50.4	31.4	22.7	14.9	8.5
2006	74.8	70.3	55.5	46.1	27.9	19.6	12.6	7.2	2006	79.7	75.1	60.3	50.5	31.5	22.8	15.0	8.6
2007	75.0	70.4	55.7	46.3	28.1	19.9	12.8	7.3	2007	79.9	75.2	60.4	50.6	31.7	22.9	15.1	8.6
Northern Ireland																	
1981	69.2	65.4	50.9	41.5	23.2	15.6	9.7	5.8	1981	75.5	71.6	56.8	47.1	28.3	20.0	12.8	7.3
1986	70.9	66.8	52.2	42.7	24.2	16.4	10.4	6.2	1986	77.1	72.9	58.1	48.3	29.3	20.8	13.4	7.8
1991	72.6	68.2	53.6	44.1	25.5	17.3	11.0	6.4	1991	78.4	74.0	59.2	49.4	30.3	21.6	14.2	8.3
1996	73.8	69.4	54.7	45.3	26.6	18.2	11.4	6.6	1996	79.2	74.7	59.9	50.0	30.9	22.1	14.4	8.4
2000	74.8	70.4	55.7	46.2	27.6	19.1	11.9	6.6	2000	79.8	75.2	60.4	50.6	31.5	22.6	14.6	8.2
2001	75.2	70.7	56.1	46.6	27.9	19.4	12.3	6.9	2001	80.1	75.6	60.7	50.9	31.8	22.9	14.9	8.4
2002	75.6	71.1	56.4	46.9	28.2	19.7	12.4	7.0	2002	80.4	75.9	61.0	51.2	32.0	23.1	15.1	8.5
2003	75.8	71.4	56.7	47.1	28.4	19.9	12.6	7.2	2003	80.6	76.0	61.1	51.3	32.2	23.3	15.2	8.6
2004	76.0	71.6	56.9	47.4	28.7	20.2	12.8	7.3	2004	80.8	76.3	61.4	51.6	32.5	23.5	15.4	8.7
2005	76.1	71.6	57.0	47.5	28.9	20.4	13.0	7.3	2005	81.0	76.4	61.6	51.8	32.7	23.7	15.6	8.8
2006	76.2	71.7	57.1	47.6	29.1	20.6	13.1	7.3	2006	81.2	76.6	61.8	52.0	32.8	23.9	15.7	8.9
2007	76.3	71.8	57.2	47.7	29.2	20.7	13.2	7.3	2007	81.2	76.6	61.8	52.0	32.9	24.0	15.7	8.9

Note: All figures are based on a three-year period, so that for instance 2003 represents 2002-2004. The population estimates used to calculate these life expectancies are the latest available at time of publication of the 2006-2008 interim life tables (21 October 2009). All figures are based on death registrations. A minor methodological change was introduced for the 2006 figures to ensure consistency with population estimates of the very elderly for England and Wales. The effect on calculated life expectancies is marginal.

Table 6.1 Deaths: age and sex

England and Wales

Numbers (thousands) and rates

Year and quarter	All ages	Age group												
		Under 1[1]	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over
Numbers (thousands)														
Males														
1976	300.1	4.88	0.88	0.68	0.64	1.66	1.66	3.24	5.93	20.4	52.0	98.7	80.3	29.0
1981	289.0	4.12	0.65	0.45	0.57	1.73	1.58	3.18	5.54	16.9	46.9	92.2	86.8	28.5
1986	287.9	3.72	0.57	0.33	0.38	1.43	1.75	3.10	5.77	14.4	43.6	84.4	96.2	32.2
1991	277.6	2.97	0.55	0.34	0.35	1.21	1.76	3.69	6.16	13.3	34.9	77.2	95.8	39.3
1996	268.7	2.27	0.44	0.24	0.29	0.93	1.41	4.06	5.84	13.6	30.1	71.0	90.7	47.8
1999	264.3	2.08	0.41	0.22	0.28	0.90	1.27	3.85	5.93	13.6	28.7	64.3	90.4	52.3
2000	255.5	1.89	0.34	0.22	0.28	0.87	1.22	3.76	6.05	13.4	27.9	60.6	87.1	51.9
2001	252.4	1.81	0.32	0.19	0.28	0.88	1.27	3.63	6.07	13.3	27.5	57.5	87.0	52.7
2002	253.1	1.81	0.32	0.20	0.28	0.83	1.24	3.47	6.20	12.9	27.7	56.3	88.3	53.6
2003	253.9	1.81	0.31	0.19	0.24	0.81	1.23	3.26	6.32	12.7	28.2	55.1	89.6	54.0
2004	244.1	1.79	0.29	0.17	0.26	0.78	1.15	3.10	6.19	12.2	27.0	52.5	87.3	51.3
2005	243.3	1.87	0.28	0.16	0.25	0.75	1.11	2.89	6.14	12.1	27.3	51.0	84.8	54.7
2006	240.9	1.86	0.29	0.19	0.26	0.84	1.21	3.13	6.32	12.3	27.6	48.9	81.9	56.2
2007	240.8	1.88	0.34	0.18	0.23	0.80	1.22	3.14	6.26	11.9	27.5	47.8	80.6	58.9
2008	243.0	1.92	0.28	0.18	0.19	0.78	1.26	3.09	6.42	12.3	27.1	47.9	79.8	61.9
Females														
1976	298.5	3.46	0.59	0.45	0.42	0.62	0.67	1.94	4.04	12.8	29.6	67.1	104.7	72.1
1981	288.9	2.90	0.53	0.30	0.37	0.65	0.64	1.82	3.74	10.5	27.2	62.8	103.6	73.9
1986	293.3	2.59	0.49	0.25	0.27	0.56	0.67	1.65	3.83	8.8	25 8	58.4	106.5	83.6
1991	292.5	2.19	0.44	0.25	0.22	0.46	0.64	1.73	3.70	8.4	21.3	54.2	103.3	95.7
1996	291.5	1.69	0.32	0.18	0.20	0.43	0.51	1.85	3.66	8.9	18.2	50.2	96.7	108.7
1999	291.8	1.55	0.30	0.17	0.22	0.39	0.47	1.67	3.79	9.0	18.0	45.1	93.9	117.2
2000	280.1	1.49	0.25	0.16	0.18	0.38	0.47	1.69	3.87	9.1	17.6	42.2	89.3	113.4
2001	277.9	1.43	0.27	0.19	0.18	0.38	0.47	1.59	3.77	8.9	17.6	40.5	88.8	113.9
2002	280.4	1.31	0.24	0.16	0.19	0.38	0.43	1.61	3.77	8.7	17.7	39.6	90.0	116.3
2003	284.4	1.50	0.28	0.15	0.19	0.35	0.46	1.57	3.86	8.5	18.0	39.0	92.7	117.9
2004	268.4	1.43	0.23	0.13	0.16	0.38	0.46	1.49	3.80	8.1	17.6	36.9	88.3	109.4
2005	269.1	1.37	0.22	0.13	0.18	0.38	0.48	1.48	3.81	8.2	17.8	36.0	86.4	113.1
2006	261.7	1.51	0.27	0.14	0.17	0.38	0.44	1.38	3.80	8.1	17.9	34.5	81.2	111.9
2007	263.3	1.46	0.24	0.12	0.19	0.36	0.45	1.36	3.79	8.1	18.2	33.9	79.4	115.8
2008	266.1	1.45	0.27	0.14	0.14	0.35	0.46	1.45	3.81	8.3	18.2	33.9	77.8	119.8
Rates (deaths per 1,000 population in each age group)														
Males														
1976	12.5	16.2	0.65	0.34	0.31	0.88	0.96	0.92	2.09	6.97	19.6	50.3	116.4	243.2
1981	12.0	12.6	0.53	0.27	0.29	0.82	0.83	0.89	1.83	6.11	17.7	45.6	105.2	226.5
1986	11.8	11.0	0.44	0.21	0.23	0.72	0.83	0.88	1.68	5.27	16.6	42.8	101.2	215.4
1991	11.2	8.3	0.40	0.21	0.23	0.72	0.89	0.94	1.76	4.56	13.9	38.1	93.1	205.6
1996	10.7	6.8	0.32	0.14	0.18	0.60	0.85	1.01	1.67	4.06	11.9	34.5	85.0	198.8
1999	10.4	6.5	0.31	0.12	0.16	0.56	0.83	0.99	1.60	3.99	10.9	31.6	79.9	194.4
2000	10.0	6.1	0.26	0.13	0.16	0.54	0.79	0.98	1.59	3.92	10.4	29.7	75.9	187.5
2001	9.9	5.9	0.25	0.11	0.16	0.53	0.80	0.97	1.56	3.89	10.0	28.0	74.0	186.4
2002	9.8	5.9	0.25	0.12	0.16	0.49	0.77	0.94	1.57	3.86	9.7	27.2	73.5	187.7
2003	9.8	5.7	0.25	0.11	0.14	0.46	0.75	0.91	1.58	3.81	9.6	26.4	72.9	191.0
2004	9.4	5.5	0.23	0.10	0.15	0.44	0.67	0.87	1.53	3.67	9.0	25.0	69.9	176.0
2005	9.3	5.7	0.24	0.10	0.16	0.48	0.69	0.89	1.56	3.61	8.9	24.1	67.4	172.1
2006	9.1	5.4	0.23	0.12	0.15	0.46	0.67	0.89	1.55	3.58	8.8	23.2	64.7	163.4
2007	9.1	5.3	0.26	0.12	0.13	0.42	0.65	0.89	1.54	3.42	8.7	22.5	62.8	161.0
2008	9.1	5.3	0.21	0.12	0.11	0.43	0.65	0.87	1.59	3.45	8.6	22.1	61.4	161.4
2007 March	10.0	5.3	0.29	0.12	0.14	0.47	0.65	0.92	1.55	3.68	9.2	24.4	69.9	184.3
June	8.8	5.7	0.26	0.12	0.14	0.44	0.65	0.90	1.50	3.39	8.6	22.1	60.7	152.3
Sept	8.3	5.1	0.22	0.09	0.13	0.40	0.61	0.88	1.49	3.18	8.2	20.7	57.1	140.5
Dec	9.3	5.2	0.28	0.13	0.12	0.43	0.69	0.88	1.61	3.45	9.0	22.8	63.6	167.3
2008 March	9.7	5.4	0.21	0.12	0.11	0.37	0.60	0.84	1.57	3.66	9.0	23.4	65.8	177.7
June	8.9	5.3	0.22	0.12	0.12	0.45	0.61	0.87	1.59	3.40	8.5	21.7	60.0	155.2
Sept	8.2	5.1	0.18	0.13	0.10	0.44	0.70	0.88	1.57	3.27	8.1	20.4	55.1	139.0
Dec	9.5	5.4	0.25	0.09	0.12	0.46	0.71	0.89	1.63	3.48	8.6	22.8	64.7	173.7
2009[2] March[p]	9.9	5.4	0.18	0.06	0.13	0.43	0.57	0.81	1.61	3.42	9.0	22.9	67.1	182.7
June[p]	8.4	5.3	0.18	0.10	0.09	0.41	0.55	0.79	1.58	3.12	8.2	20.4	55.6	144.4
Sept[p]	8.0	5.0	0.16	0.08	0.10	0.39	0.54	0.81	1.57	3.16	7.9	19.4	52.8	134.8

Notes: Figures represent the numbers of deaths registered in each year up to 1992 and the numbers of deaths occurring in each year from 1993 to 2005. From 2006 onwards figures relate to the numbers of deaths registered in each year.

1 Rates per 1,000 live births.

2 Death rates for 2009 are based on the 2008-based population projections for 2009.

p provisional

Table 6.1 continued **Deaths: age and sex**

England and Wales

Numbers (thousands) and rates

Year and quarter	All ages	Age group												
		Under 1[1]	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over
Females														
1976	11.8	12.2	0.46	0.24	0.21	0.35	0.40	0.56	1.46	4.30	10.1	26.0	74.6	196.6
1981	11.3	9.4	0.46	0.19	0.19	0.32	0.35	0.52	1.26	3.80	9.5	24.1	66.2	178.2
1986	11.4	8.0	0.40	0.17	0.17	0.29	0.33	0.47	1.12	3.24	9.2	23.4	62.5	169.4
1991	11.2	6.4	0.33	0.16	0.15	0.29	0.33	0.44	1.05	2.87	8.2	21.8	58.7	161.6
1996	11.0	5.3	0.25	0.10	0.12	0.29	0.31	0.46	1.04	2.63	7.1	20.6	55.8	158.9
1999	11.0	5.1	0.24	0.10	0.13	0.25	0.31	0.43	1.01	2.61	6.7	19.2	53.4	162.6
2000	10.5	5.1	0.20	0.10	0.11	0.25	0.30	0.44	1.00	2.62	6.4	18.1	50.8	155.2
2001	10.4	4.9	0.22	0.12	0.11	0.24	0.30	0.42	0.96	2.57	6.3	17.4	50.1	155.0
2002	10.4	4.5	0.20	0.10	0.11	0.24	0.27	0.44	0.94	2.54	6.0	17.0	50.4	159.4
2003	10.6	4.9	0.24	0.10	0.12	0.21	0.28	0.43	0.95	2.51	5.9	16.7	51.3	165.6
2004	9.9	4.6	0.20	0.09	0.10	0.22	0.27	0.42	0.93	2.39	5.7	15.8	48.6	154.3
2005	9.9	4.4	0.19	0.09	0.11	0.22	0.27	0.40	0.90	2.38	5.6	15.4	48.1	152.7
2006	9.6	4.6	0.22	0.09	0.10	0.22	0.26	0.39	0.92	2.33	5.6	14.8	45.7	143.8
2007	9.6	4.3	0.19	0.08	0.12	0.21	0.25	0.39	0.92	2.27	5.6	14.5	44.9	143.6
2008	9.6	4.2	0.21	0.09	0.09	0.20	0.25	0.42	0.93	2.28	5.5	14.2	44.2	145.5
2007 March	10.9	4.5	0.24	0.07	0.12	0.27	0.27	0.38	0.97	2.31	5.9	16.3	51.7	167.0
June	9.2	4.6	0.21	0.10	0.13	0.18	0.22	0.44	0.86	2.31	5.5	14.1	42.8	136.0
Sept	8.5	4.1	0.14	0.06	0.11	0.18	0.28	0.36	0.87	2.22	5.2	12.9	40.0	124.3
Dec	9.8	4.2	0.16	0.10	0.12	0.20	0.25	0.38	0.96	2.25	5.7	14.7	45.4	147.9
2008 March	10.5	4.5	0.20	0.07	0.09	0.22	0.23	0.42	0.93	2.34	5.7	15.0	48.7	160.7
June	9.3	3.6	0.20	0.11	0.10	0.16	0.28	0.41	0.92	2.29	5.5	13.8	42.8	139.7
Sept	8.5	4.4	0.20	0.09	0.08	0.20	0.24	0.43	0.91	2.17	5.2	13.0	38.9	123.4
Dec	10.3	4.3	0.25	0.09	0.08	0.23	0.26	0.40	0.97	2.32	5.8	15.0	46.4	158.4
2009[2] March[P]	10.6	4.3	0.21	0.09	0.10	0.18	0.24	0.42	0.95	2.25	5.9	14.8	48.5	165.8
June[P]	8.5	4.4	0.17	0.09	0.07	0.19	0.20	0.39	0.85	2.08	5.2	12.9	39.1	124.9
Sept[P]	8.0	3.8	0.17	0.09	0.09	0.17	0.22	0.37	0.85	2.03	5.0	12.4	36.3	116.8

See notes on first page of table.

Table 6.2 Deaths: subnational

Government Office Regions of England

Rates

Year and quarter	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East	London	South East	South West
Total deaths (deaths per 1,000 population of all ages)									
1996	11.7	11.7	11.2	10.7	10.7	10.3	9.4	10.7	11.7
1997	11.6	11.6	11.1	10.5	10.6	10.2	9.0	10.6	11.7
1998	11.9	11.7	11.2	10.8	10.6	10.2	8.8	10.4	11.4
1999	11.6	11.5	10.9	10.7	10.7	10.3	8.7	10.5	11.6
2000	10.8	10.7	10.3	10.0	10.3	9.9	8.2	9.8	11.3
2001	11.1	11.0	10.4	10.1	10.2	9.9	7.9	9.9	11.0
2002	11.2	11.0	10.5	10.2	10.3	10.0	7.8	10.0	11.1
2003	11.3	11.0	10.5	10.3	10.5	9.9	7.9	9.9	11.2
2004	11.0	10.5	10.1	9.7	9.9	9.5	7.3	9.4	10.4
2005	10.8	10.4	9.9	9.7	9.9	9.4	7.1	9.4	10.4
2006	10.5	10.2	9.6	9.6	9.7	9.2	6.8	9.2	10.1
2007	10.4	10.3	9.7	9.4	9.7	9.1	6.7	9.1	10.2
2008	10.6	10.3	9.7	9.5	9.7	9.2	6.6	9.1	10.3
2007 March	11.8	11.7	10.9	10.6	11.0	10.2	7.4	10.0	11.5
June	9.9	9.9	9.5	9.1	9.4	8.8	6.5	8.8	9.8
Sept	9.4	9.2	8.8	8.5	8.5	8.3	6.1	8.2	9.2
Dec	10.7	10.4	10.0	9.7	9.8	9.4	6.8	9.5	10.5
2008[1] March	11.6	11.1	10.4	10.1	10.5	10.0	7.3	9.7	10.9
June	10.1	9.9	9.5	9.4	9.4	9.0	6.5	8.9	9.9
Sept	9.6	9.2	8.6	8.5	8.6	8.1	5.8	8.1	9.4
Dec	11.3	10.9	10.3	10.3	10.2	9.7	7.0	9.6	10.8
2009[1] March[p]	11.4	11.1	10.5	10.4	10.6	10.3	7.3	10.4	11.6
June[p]	9.7	9.3	8.8	9.0	8.8	8.5	6.1	8.3	9.5
Sept[p]	9.1	8.9	8.4	8.2	8.3	8.1	5.7	7.9	9.1
Infant mortality (deaths under 1 year per 1,000 live births)									
1996	6.2	6.3	6.5	6.3	6.8	5.3	6.3	5.3	5.5
1997	5.8	6.7	6.5	5.7	7.0	4.8	5.8	5.0	5.8
1998	5.0	6.3	6.9	5.6	6.5	5.0	6.0	4.4	4.8
1999	5.6	6.5	6.3	6.0	6.9	4.6	6.0	4.8	4.7
2000	6.5	6.2	7.3	5.4	6.8	4.4	5.4	4.4	4.7
2001	5.4	5.8	5.5	4.9	6.4	4.5	6.1	4.2	5.4
2002	4.8	5.4	6.1	5.6	6.6	4.3	5.5	4.5	4.3
2003	4.9	5.9	5.7	5.9	7.4	4.5	5.4	4.2	4.1
2004	4.6	5.4	5.8	4.9	6.3	4.2	5.2	3.9	4.5
2005	4.7	5.6	6.0	4.8	6.6	4.0	5.2	3.9	4.5
2006	5.4	5.6	5.7	5.4	6.4	4.1	4.9	4.1	4.0
2007	4.7	5.0	5.7	5.3	5.9	4.3	4.5	3.9	4.2
2008	4.2	5.2	5.4	4.9	6.5	4.4	4.3	4.0	4.0
2007 March	5.1	5.1	4.5	5.3	6.4	4.2	4.5	3.9	4.4
June	4.5	5.5	7.2	6.5	6.1	3.9	5.1	4.3	3.9
Sept	4.0	4.3	5.2	5.1	5.5	4.7	4.7	3.9	4.1
Dec	5.3	5.2	5.7	4.3	5.7	4.4	4.0	3.5	4.2
2008 March	4.1	5.0	5.8	4.7	7.6	4.4	4.0	4.5	4.9
June	4.5	4.8	4.6	4.8	6.7	4.2	3.9	3.7	3.0
Sept	3.8	5.6	4.8	5.7	6.4	4.4	4.4	3.6	4.1
Dec	4.4	5.2	6.4	4.3	5.5	4.5	4.8	4.3	3.9
2009 March[p]	4.3	4.8	6.4	5.8	6.1	3.9	4.6	4.5	4.2
June[p]	3.8	5.5	4.8	5.3	7.0	3.7	4.6	3.8	4.7
Sept[p]	3.5	4.6	6.0	4.1	5.2	4.5	3.9	3.7	3.5

Notes: Figures represent the numbers of deaths occurring in each year up to 2005. From 2006 onwards the figures relate to the number of deaths registered in each year. The 2008 perinatal rates have been updated to include the late receipt of 14 stillbirth records.
All infant, neonatal and perinatal mortality data has now been revised to registration data.

1 Total deaths rates for 2008 and 2009 have been calculated using the mid-2008 population estimates published on 27 August 2009.

p provisional.

Table 6.2 continued **Deaths: subnational**

Government Office Regions of England — Rates

Year and quarter	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East	London	South East	South West
Neonatal mortality (deaths under 4 weeks per 1,000 live births)									
1996	4.1	4.0	4.2	4.2	4.9	3.5	4.4	3.5	3.8
1997	3.7	4.3	4.4	3.7	5.0	3.3	3.7	3.4	3.9
1998	3.1	4.1	4.5	3.7	4.8	3.4	4.1	2.9	3.3
1999	4.1	4.4	4.1	4.3	4.8	3.0	4.1	3.2	3.2
2000	4.4	4.3	5.0	4.1	5.0	3.0	3.7	3.1	3.0
2001	3.5	3.8	3.2	3.4	4.4	2.9	4.1	2.9	3.7
2002	3.2	3.6	4.0	4.0	4.8	2.9	3.6	2.9	3.1
2003	3.2	4.1	4.0	4.2	5.1	3.0	3.7	2.8	2.9
2004	2.8	3.6	3.8	3.5	4.7	2.9	3.6	2.8	3.2
2005	2.9	3.8	4.0	3.5	4.9	2.6	3.4	2.7	3.2
2006	3.8	3.8	4.0	4.0	4.6	2.9	3.4	2.8	2.9
2007	3.0	3.3	4.0	3.6	4.5	3.0	3.1	2.6	2.8
2008	3.2	3.5	3.3	3.5	4.6	3.0	2.8	2.8	2.8
2007 March	4.0	3.8	3.3	3.4	4.8	2.9	3.0	2.6	3.0
June	1.8	3.7	5.2	4.5	4.6	2.6	3.5	3.0	2.5
Sept	2.6	2.7	3.5	3.5	4.2	3.1	3.1	2.5	3.1
Dec	3.7	2.9	3.8	2.8	4.6	3.6	2.7	2.4	2.7
2008 March	3.2	3.3	4.0	3.6	5.8	3.0	2.7	2.9	3.1
June	2.9	3.4	2.7	3.3	4.3	2.7	2.6	2.7	2.4
Sept	3.1	3.6	3.1	4.1	4.8	2.9	2.9	2.6	2.8
Dec	3.6	3.6	3.6	3.0	3.5	3.3	3.1	3.0	2.9
2009 March[P]	2.7	2.9	4.0	3.9	4.5	3.0	3.0	2.7	2.6
June[P]	3.0	3.7	3.5	3.9	4.5	2.8	2.9	2.2	3.0
Sept[P]	2.3	3.4	4.1	2.8	4.3	3.1	2.8	2.8	2.1
Perinatal mortality (stillbirths and deaths under 1 week per 1,000 total births)									
1996	9.2	8.6	8.3	8.7	10.2	7.5	9.6	7.8	7.5
1997	8.0	8.9	8.3	7.7	9.6	7.3	9.0	7.3	8.7
1998	8.2	8.7	9.2	8.0	9.3	7.4	9.0	6.8	7.3
1999	8.2	8.7	8.3	7.8	9.9	7.0	9.0	6.9	7.8
2000	8.5	8.6	9.6	7.8	9.6	7.1	9.0	6.6	6.6
2001	7.8	8.7	7.5	7.9	9.1	7.1	8.9	6.9	7.2
2002	8.1	8.5	9.0	8.5	10.0	7.5	9.3	6.9	6.8
2003	7.8	9.0	9.1	9.5	10.2	7.3	9.6	7.0	7.0
2004	7.9	8.4	9.4	8.1	9.6	7.6	9.3	7.0	7.2
2005	7.8	8.2	9.4	7.6	9.9	6.4	8.5	6.8	6.8
2006	8.0	8.3	8.5	8.4	9.2	6.7	8.8	7.0	6.6
2007	7.2	7.9	8.8	7.3	9.1	7.0	8.4	6.7	6.4
2008	8.1	7.8	7.9	7.4	9.3	6.5	7.8	6.7	6.6
2007 March	7.5	8.5	7.8	6.8	9.5	7.6	8.5	6.8	6.8
June	6.8	7.4	9.2	8.6	9.8	6.7	9.1	7.1	6.5
Sept	7.4	7.3	8.9	7.1	7.8	7.0	8.6	6.1	6.4
Dec	7.2	8.5	9.1	6.7	9.5	6.8	7.6	6.7	6.1
2008 March	6.7	8.2	9.3	7.8	11.5	6.1	7.7	6.7	6.4
June	7.4	8.0	7.7	7.5	9.4	6.5	7.7	6.6	6.3
Sept	8.3	8.1	6.9	6.8	8.3	6.4	7.4	5.9	7.3
Dec	10.1	6.8	7.9	7.7	8.1	6.9	8.6	7.6	6.5
2009 March[P]	6.4	7.7	8.3	9.7	9.4	7.5	8.0	6.8	6.9
June[P]	7.2	7.7	7.6	8.3	10.0	7.0	7.3	6.5	7.2
Sept[P]	5.4	7.8	9.3	7.6	8.3	7.5	7.7	6.5	6.3

See notes on first page of table.

Table 6.3 Deaths: selected causes (International Classification)[1] and sex

England and Wales

Numbers (thousands) and rate for all deaths and age-standardised rates per million population for selected causes

Year and quarter	All deaths		All causes (age - standardised per million population[2])	Malignant neoplasms									
	Number (thousands)	Crude rate per 100,000 population		Oesophagus	Stomach	Colon	Rectosigmoid junction, rectum, and anus	Trachea, bronchus and lung	Melanoma of skin	Other malignant neoplasms of skin	Breast	Cervix uteri	Ovary
			A00-R99 V01-Y89	(C15)	(C16)	(C18)	(C19-C21)	(C33-C34)	(C43)	(C44)	(C50)	(C53)	(C56)
Males													
1971	288.4	1,207	13,466	76	317	187	144	1,066	10	12	4	:	:
1981	289.0	1,196	12,189	90	251	181	135	1,028	17	9	3	:	:
1991	277.6	1,125	10,291	117	185	194	117	842	23	10	3	:	:
1998	264.7	1,064	8,981	129	132	169	95	643	26	8	3	:	:
1999	264.3	1,044	8,862	127	127	161	90	611	27	7	2	:	:
2000	255.5	1,005	8,437	128	118	158	89	592	28	7	2	:	:
2001	252.4	987	8,188	129	111	155	89	570	26	7	3	:	:
2002	253.1	985	8,081	131	110	151	90	559	27	8	3	:	:
2003	253.9	982	8,000	135	102	145	90	539	28	8	2	:	:
2004	244.1	939	7,554	129	95	143	92	521	30	9	2	:	:
2005	243.3	929	7,356	132	93	137	92	515	28	8	2	:	:
2006	240.9	913	7,123	131	83	132	90	509	31	7	2	:	:
2007	240.8	906	6,949	128	82	128	88	498	31	8	3	:	:
2008	243.0	907	6,854	131	79	129	90	496	31	7	2	:	:
2007 March	65.4	998	7,616	126	88	132	86	523	33	7	2	:	:
June	58.2	879	6,756	130	84	122	86	493	31	8	3	:	:
Sept	55.2	824	6,340	128	80	126	87	470	29	7	3	:	:
Dec	62.0	926	7,096	129	78	132	94	509	31	9	3	:	:
2008 March	64.6	970	7,297	136	80	132	88	509	29	5	1	:	:
June	59.1	887	6,718	126	77	130	90	479	33	8	2	:	:
Sept	55.4	823	6,259	126	79	129	92	484	30	8	2	:	:
Dec	63.9	950	7,147	135	78	127	91	510	33	6	1	:	:
2009[3] March[P]	65.8	989	7,310	129	70	131	84	481	28	7	2	:	:
June[P]	56.6	841	6,286	134	77	123	87	488	33	7	2	:	:
Sept[P]	54.5	801	6,007	130	78	120	81	469	33	8	3	:	:
Females													
1971	278.9	1,104	8,189	40	149	176	79	183	14	6	379	83	126
1981	288.9	1,134	7,425	42	111	157	74	252	16	5	405	69	121
1991	292.5	1,122	6,410	50	74	146	61	300	18	4	401	54	118
1998	290.3	1,108	5,945	49	54	117	47	291	21	3	328	35	116
1999	291.8	1,097	5,929	52	51	115	46	289	20	3	319	33	111
2000	280.1	1,049	5,655	51	48	107	45	285	21	3	311	33	109
2001	277.9	1,038	5,543	48	46	103	45	283	20	3	308	31	112
2002	280.4	1,043	5,524	51	44	103	44	284	19	3	302	29	112
2003	284.4	1,055	5,575	50	42	98	46	285	20	3	293	27	108
2004	268.4	1,075	5,206	48	41	96	46	283	19	3	278	26	100
2005	269.4	990	5,188	48	39	96	46	290	21	3	284	26	102
2006	261.7	956	4,989	48	35	93	46	300	19	4	277	24	99
2007	263.3	957	4,921	47	35	92	48	300	21	4	267	24	96
2008	266.1	962	4,898	47	35	90	48	307	22	3	263	23	93
2007 March	74.0	1,091	5,523	50	35	92	49	315	22	4	284	25	95
June	62.8	916	4,757	48	31	88	45	296	22	4	267	22	97
Sept	58.8	847	4,408	40	37	91	47	285	21	3	251	22	97
Dec	67.7	976	5,007	51	37	96	49	306	20	4	269	25	94
2008 March	71.8	1,045	5,247	50	36	86	47	302	20	3	269	24	93
June	64.0	930	4,760	46	36	86	47	298	21	3	259	23	91
Sept	58.9	846	4,399	43	34	94	45	299	23	3	254	24	92
Dec	71.4	1,027	5,190	48	33	93	50	329	24	2	268	23	96
2009[3] March[P]	72.9	1,063	5,287	45	32	88	49	301	19	3	267	23	91
June[P]	59.1	851	4,376	45	32	82	46	294	19	2	253	23	90
Sept[P]	56.2	801	4,141	45	31	82	45	288	20	3	241	23	90

Notes: Figures represent the number of deaths registered in each year up to 1992 and the number of deaths occurring in each year from 1993 to 2005. The number of deaths for 2006 onwards relate to registrations.
The rates by cause of death in this table are based on final underlying cause. For further details see the Explanatory Notes in the 'Report: Death registrations in England and Wales, 2004: causes' in HSQ26.
Death rates from 2002 to 2005 have been updated to include the latest revised mid-year population estimates that take into account improved estimates of international migration.

Table 6.3 continued **Deaths: selected causes (International Classification)[1] and sex**

England and Wales

Numbers (thousands) and rate for all deaths and age-standardised rates per million population for selected causes

Malignant neoplasms													
Prostate	Bladder	Leukaemia	Diabetes mellitus	Ischaemic heart disease	Cerebro vascular diseases	Pneumonia	Bronchitis, emphysema and other chronic obstructive pulmonary disease	Asthma	Gastric and duodenal ulcer	Diseases of the liver	Land transport accidents	Intentional self-harm and events of undetermined intent with inquest verdict 'Open'	Year and Quarter
(C61)	(C67)	(C91-C95)	(E10-E14)	(I20-I25)	(I60-I69)	(J12-J18)	(J40-J44)	(J45-J46)	(K25-K27)	(K70-K76)	(V01-V89)	(X60-X84, Y10-Y34)	
													Males
198	124	74	82	3,801	1,541	920	944	21	107	41	209	124	1971
214	121	74	82	3,664	1,141	1,053	683	28	90	58	119	151	1981
304	121	77	131	2,984	940	391	606	31	73	76	125	160	1991
277	99	67	94	2,215	706	720	463	18	60	115	86	152	1998
272	93	67	94	2,095	673	770	474	18	64	119	86	151	1999
260	92	67	88	1,959	622	735	416	17	59	119	86	141	2000
274	93	70	94	1,872	690	388	403	16	55	139	86	134	2001
271	90	68	91	1,784	690	388	396	15	56	144	83	131	2002
273	87	71	91	1,703	662	408	411	14	53	157	84	129	2003
267	85	67	83	1,566	595	360	364	15	50	151	77	125	2004
256	80	67	79	1,470	555	353	368	12	46	156	75	118	2005
250	81	68	74	1,353	520	320	343	10	45	161	83	123	2006
247	81	66	71	1,280	481	303	337	11	39	162	79	119	2007
240	79	65	73	1,211	468	301	346	10	40	164	70	125	2008
252	83	66	77	1,442	541	395	433	11	44	178	84	115	2007 March
246	80	69	65	1,249	465	286	311	11	37	154	77	121	June
233	78	61	65	1,146	429	226	265	9	35	152	73	116	Sept
257	82	69	75	1,287	489	306	339	11	40	167	82	125	Dec
239	75	64	75	1,326	514	362	413	11	48	164	68	108	2008 March
228	78	65	73	1,196	453	284	322	8	39	161	72	121	June
238	77	61	69	1,071	409	225	260	8	34	162	70	137	Sept
253	86	69	75	1,253	495	335	392	12	39	169	70	135	Dec
246	80	69	72	1,317	515	408	428	11	41	155	63	119	2009[3] March[p]
238	78	59	63	1,072	401	248	287	9	37	149	57	125	June[p]
234	76	64	60	1,005	382	203	250	8	35	155	56	125	Sept[p]
													Females
:	32	47	89	1,668	1,352	624	193	25	44	31	82	84	1971
:	35	47	66	1,601	1,012	740	155	30	57	43	41	81	1981
:	34	44	95	1,407	812	325	211	30	46	49	45	51	1991
:	32	41	65	1,055	645	546	226	22	41	64	28	43	1998
:	30	45	65	986	629	591	241	22	39	67	28	45	1999
:	31	39	62	907	577	546	216	20	41	68	24	45	2000
:	29	41	62	878	620	307	220	19	39	77	23	40	2001
:	30	43	65	843	616	316	224	20	37	79	24	41	2002
:	30	39	66	811	606	337	244	20	36	81	24	41	2003
:	28	39	60	736	548	296	214	17	35	78	20	38	2004
:	28	39	57	686	519	298	224	17	32	81	22	38	2005
:	29	36	54	629	478	261	213	16	29	87	24	39	2006
:	27	38	53	592	455	251	218	14	26	87	23	35	2007
:	27	37	51	562	442	255	226	15	27	86	21	38	2008
:	29	40	58	689	517	353	298	18	28	96	23	33	2007 March
:	29	36	49	569	439	228	204	14	27	86	27	31	June
:	24	34	50	520	399	178	156	12	24	80	22	35	Sept
:	26	41	56	591	464	249	217	14	26	86	20	39	Dec
:	29	36	54	612	486	319	263	17	28	91	21	33	2008 March
:	28	36	51	547	431	236	206	14	26	85	22	39	June
:	25	36	46	499	380	170	159	11	27	78	24	40	Sept
:	27	37	53	590	472	296	275	17	27	92	18	40	Dec
:	27	34	58	576	482	348	288	18	28	86	17	36	2009[3] March[p]
:	28	35	45	490	378	189	180	12	21	82	16	37	June[p]
:	27	39	46	448	349	160	147	9	22	77	14	39	Sept[p]

1 The Ninth Revision of the International Classification of Diseases, 1975, came into operation in England and Wales on 1 January 1979.TheTenth Revision of the International Classification of Diseases, 1992, came into operation in England and Wales on 1 January 2001. The cause descriptions and codes relate to ICD-10. For changes to this table see 'In Brief', Health Statistics Quarterly 14.

2 Directly age-standardised to the European Standard Population. See Notes to Tables.

3 Death rates for 2009 are provisional and based on the 2008-based population projections for 2009.

p provisional

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